TALENT AT RISK
Thornton A. May sees a war for IT talent on the horizon. **PAGE 19**

PACKAGE STORE
Symantec starts to pull together its various Veritas management tools into an integrated offering. **PAGE 9**

COMPUTERWORLD

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MAY 15, 2006 ▪ VOL. 40 ▪ NO. 20 ▪ $5/COPY

New Avaya Pricing Sparks Cost Concerns

Vendor says goal is to simplify licensing, but some users see big price increases

BY MATT HAMBLEN

Avaya Inc.'s ongoing move to a user-based pricing model for its IP telephony software and other communications applications is raising concerns among some customers, who say that they face stiff cost increases under the scheme.

Avaya officials said last week that the company began rolling out the new pricing approach last year in order to simplify what had been a complex and inconsistent software licensing model that priced products in different ways.

> **Nobody used any four-letter words, but it was a pretty aggressive discussion.**
>
> RENEE SEAY
> CEO, INAAU; REFERRING TO SESSION ON AVAYA'S PRICING AT USER GROUP CONFERENCE

But an Avaya user who asked not to be identified said he received a price quote in March for an upgrade to Avaya's Communication Manager 3.1 software that would increase his annual license costs almost fivefold, from $60,000 to about $290,000. The customer, who uses the Avaya software to support 2,800 phones at two office sites, provided a written copy of the quote to *Computerworld*.

He said he is hopeful that Avaya will provide some relief on the proposed cost increase. If not, the user added, he will delay the software upgrade and consider switching to a rival vendor, such as Cisco Systems Inc. or Alcatel, within the next two years.

The pricing changes were the subject of two boisterous sessions at an independent Avaya user group's annual conference in Orlando two weeks ago, according to attendees and user group officials.

The new pricing scheme

Avaya, page 14

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The Faces of Mobile IT

Different types of mobile users, such as road warriors, telecommuters and blue-collar workers, need different forms of IT support.

SPECIAL REPORT

Their stories begin on PAGE 21.

Users Hope for the Best As SGI Tries to Right Itself

CEO says it will be 'business as usual' for vendor despite bankruptcy filing

BY PATRICK THIBODEAU

Despite its filing for bankruptcy protection last week, Silicon Graphics Inc. said that it will continue to provide systems, service and support to users without any change and that it is moving ahead with its new-product plans.

That message was an attempt by SGI officials to soothe users who rely on the company's high-performance computing technology. For example, SGI systems account for nearly half of the 3,000 CPUs available for use at the University of Manchester's research computing center in England, according to its director, Terry Hewitt.

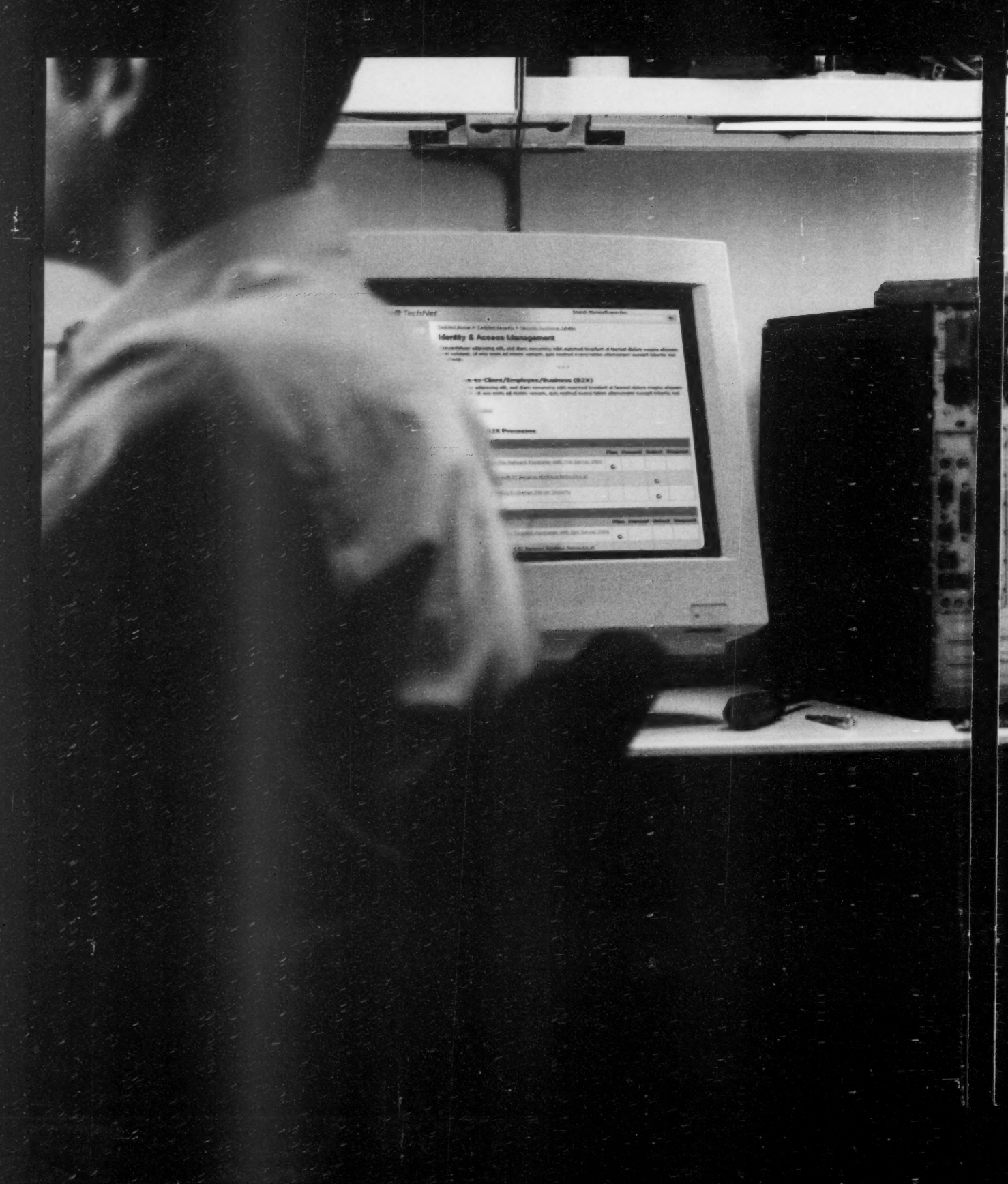
Hewitt said he's concerned about the bankruptcy filing and wants more details from SGI about its finances and reorganization plan. But "there's nothing to panic about," he said, adding that SGI's new chairman and CEO, Dennis McKenna, "has put in changes that should make the difference, and he needs some time for those to take full effect."

OUR TAKE
Like Sun, SGI is suffering because Unix is losing out to Linux, says Mark Hall. Page 18

McKenna took over as head of SGI in February, and Hewitt met with him soon afterward. "He has a good understanding of the product [line]," Hewitt said. "I was very impressed with his competency."

Louisiana State University in Baton Rouge purchased a 32-processor configuration of SGI's Linux-based Prism Extreme visualization system last year.

SGI, page 58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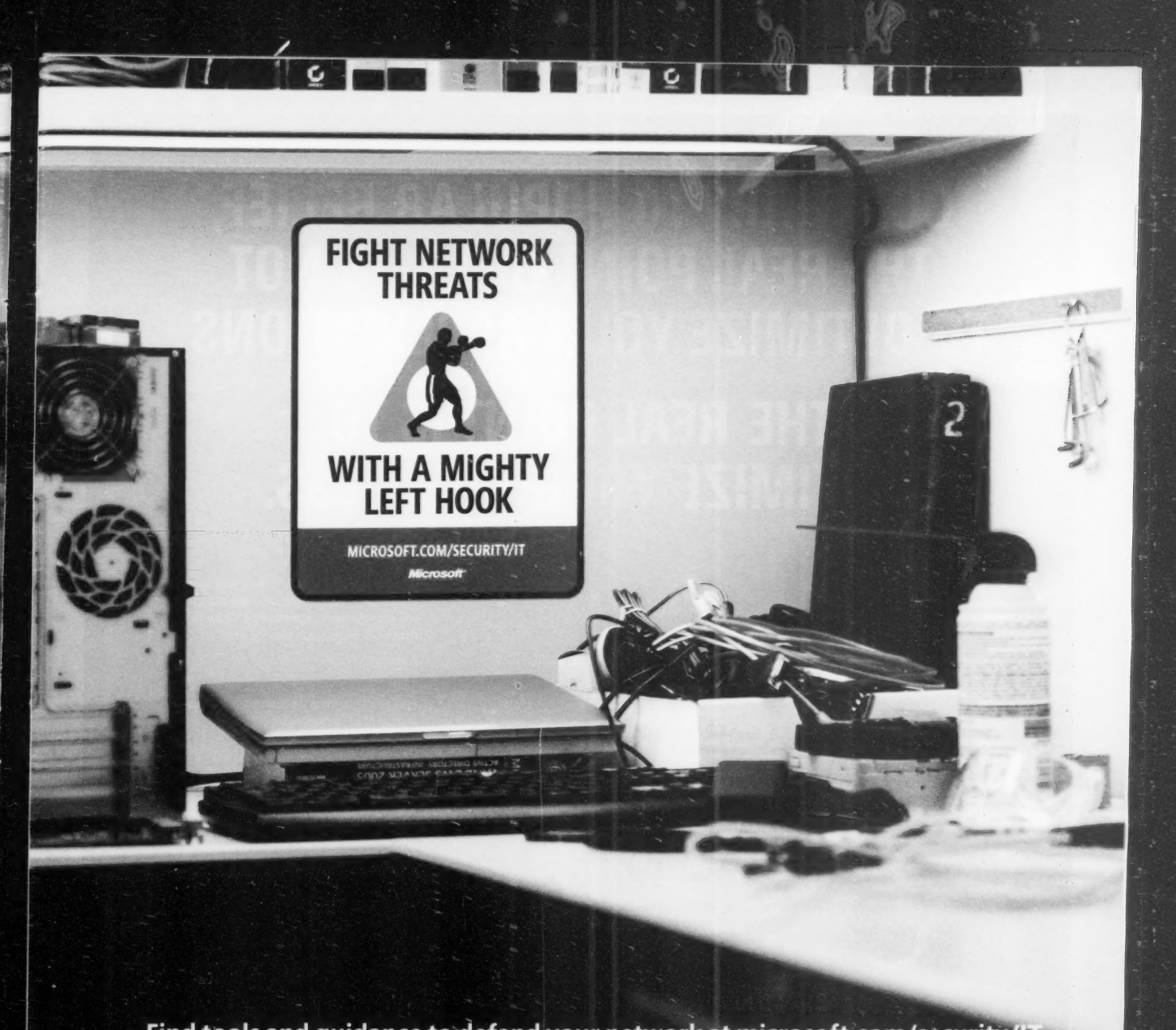

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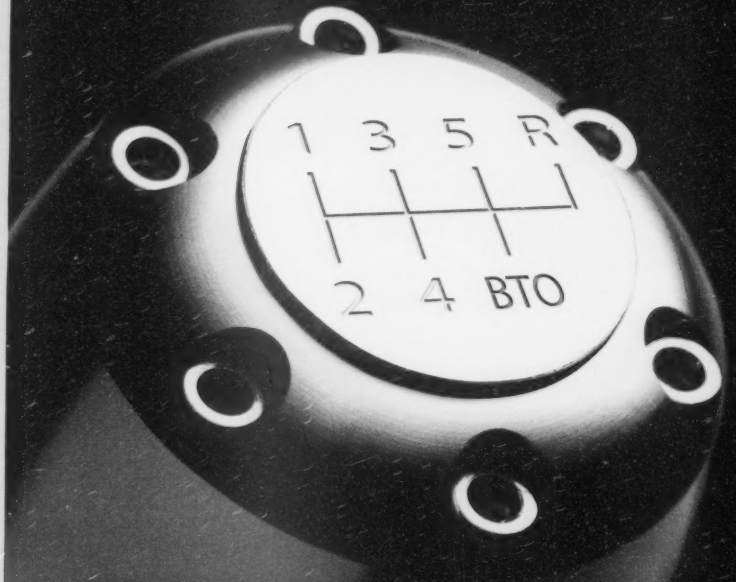

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KNOWLEDGE CENTER MOBILE & WIRELESS

Corporate America is addicted to mobile connectivity. In this special report, we hear from mobile workers like Ohio State University's Heather Kaneer — about the devices they use and the features they'd like — as well as from the IT workers who have to support them.

Package starts on page 21.

SPECIAL REPORT

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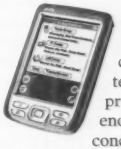

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Workers at Auto Warehousing Co. use Intertec 751 handhelds to locate cars on lots filled with thousands of vehicles.

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The following stories can be found online at computerworld.com/thisweek.

The War Driver Returns: ***Computerworld***'s **David Ramel hits the road again to check out the state of wireless security – and reaches some surprising conclusions.**

Executive Briefing: Read about the threats from mobile and wireless technology in the enterprise, and the strategies developed to deal with them, in this online special report.

Lone Warrior. What about the one-person shop? Learn how power PDA user Bert Latamore thrives on being completely mobile and self-sufficient – until there's trouble.

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AT DEADLINE

U.S., Microsoft to Update Mapping App

The U.S. Department of Defense's National Geospatial-Intelligence Agency and Microsoft Corp. have agreed to jointly develop updates for Microsoft's Virtual Earth mapping program for military and nonmilitary purposes. The effort will focus on improving the software for use in tasks such as guiding relief efforts for natural disasters. Officials declined to disclose potential military applications.

Thomson to Replace RIM With GoodLink

Thomson Inc. plans to put more than 2,000 of its workers on Good Technology Inc.'s new GoodLink wireless messaging service over the next 18 months, replacing Research In Motion Ltd.'s BlackBerry service. Thomson said it selected GoodLink because it offered broader functionality than RIM, not because of RIM's patent battle with NTP Inc. So far, about 200 of the users have shifted to GoodLink.

SAP Unit to Support Siebel CRM Products

SAP AG subsidiary TomorrowNow Inc., a third-party support services provider, this week plans to begin supporting the Siebel CRM software of rival Oracle Corp. TomorrowNow already supports Oracle's PeopleSoft and J.D. Edwards products. Bryan, Texas-based TomorrowNow said a seven-member team in Research Triangle Park, N.C., will handle the Siebel effort.

CA Unveils Tape Encryption Tool

CA Inc. today is slated to launch a software program designed to ease tape encryption and key-management functions for mainframe users. The BrightStor Tape Encryption tool can encrypt data as it is written to standard-label z/OS tapes, without requiring changes to job control language or applications, CA said. Pricing starts at $60,000 for encrypting up to 300 data files per month.

OpenDocument Plug-ins May Preserve Use of Office in Mass.

Microsoft still in the picture as state plans to move ahead

BY ERIC LAI

MASSACHUSETTS CIO Louis Gutierrez last week reiterated that the availability of third-party plug-in software enabling Microsoft Office users to open and save files in the OpenDocument format would meet the state's requirement that its executive agencies use standard document formats.

Gutierrez's comments came after a Silicon Valley programmer disclosed that he has developed an Office plug-in supporting OpenDocument, which is formally known as the Open Document Format for Office Applications.

The programmer, Gary Edwards of Redwood City, Calif., is active in promoting the use of OpenDocument. He said the plug-in is meant to enable fed-up users of Office to switch to alternatives such as Sun Microsystems Inc.'s StarOffice, IBM's Workplace or the OpenOffice application suite. The plug-in "is like a key that unlocks them from Microsoft Office and lets them take the first step sideways" toward another product, he said.

But Gutierrez said that such technology could clear the way for Massachusetts agencies to continue using Office after the state's policy mandating the use of OpenDocument goes into effect in January. "We have a large installed base of Office suites, and the availability of a plug-in [supporting OpenDocument] would meet our policy requirements," he said.

Seeking Assistance

In an interview with *Computerworld* last month, Gutierrez said tools that could convert files between Microsoft Corp.'s formats and OpenDocument would let the state avoid "months of question marks" over whether Office qualifies for continued use.

And now the state's IT division is actively looking for conversion software, via a request for information issued May 3. The RFI asks for information about plug-ins or other converters that could work with existing Office 2000 and 2003 installations and with Office 2007, which Microsoft plans to release by year's end.

"We have a large installed base of Office suites, and the availability of a plug-in [supporting OpenDocument] would meet our policy requirements."

LOUIS GUTIERREZ, CIO FOR THE STATE OF MASSACHUSETTS

Gutierrez was appointed state CIO in January after the resignation of predecessor Peter Quinn, the architect of the OpenDocument plan. Gutierrez last week said there hasn't been any "chill" in the state's attitude toward the use of open-source software, adding that its policy has never explicitly mandated that agencies move away from Office, despite Microsoft's refusal to support OpenDocument.

"I believe firmly in the technical reference model created [by the state] and the IT division's promotion of it, but my position is that it does not particularly advantage or disadvantage any particular office suite," Gutierrez said.

Although the OpenDocument policy is due to take effect next January, Gutierrez has said that state officials will deliver a status update next month. The process in Massachusetts is being closely watched as a test case by other government bodies and other organizations that are looking to adopt OpenDocument, which was accepted two weeks ago by the International Standards Organization.

The pursuit of a plug-in for Office "does not change the state's standard for open documents," said Joe Wilcox, an analyst at JupiterResearch in New York. "So far, I don't think they are backing away."

Microsoft is promoting Open XML, a new file format native to Office 2007, as an open standard. But Alan Yates, general manager in charge of Microsoft's information worker business strategy, said the company welcomes the development of Office plug-ins for OpenDocument. "We have always expected that third parties would create bridges between the two sets of XML-based formats," he said.

Edwards said his plug-in currently can save Word documents in OpenDocument while retaining their formatting and other metadata. More work is needed, however, to enable Excel and PowerPoint files to be saved properly in OpenDocument, he said. ▸

Developer Takes Hits From Open-source Backers

GARY EDWARDS, a programmer who is developing a plug-in that would let Office work with OpenDocument, is a co-founder of OpenDocument Foundation Inc., a nonprofit group that is working to promote the use of the file format.

In addition, Edwards formerly was OpenOffice.org's technical liaison to the Organization for the Advancement of Structured Information Standards, which oversees the OpenDocument specifications. But his pedigree hasn't made him immune to criticism by OpenOffice advocates over the plug-in work.

"I understand that Massachusetts is under the gun to migrate and that this might make it easier to fulfill their mandate," said Louis Suarez-Potts, who works at CollabNet Inc. and manages OpenOffice.org's community council. But, he added, "I see anything that extends the life of Microsoft Office as problematic."

Edwards conceded that slowing the adoption of OpenOffice by users could be a side effect of plug-ins such as the one he's developing. "Yes, I want to see OpenOffice on every desktop," he said. "But I think in many ways, we are extending the usefulness of Microsoft Office."

Partly as a concession to his open-source critics, Edwards said he currently isn't working to make his plug-in function with Office 2007. But he acknowledged that if Massachusetts were interested enough in Office 2007 compatibility to pay for it, he would be hard-pressed to refuse to build it.

There are other alternatives besides Edwards' plug-in. For example, a New Zealand-based open-source project has developed free software that's designed to convert Word files into OpenDocument. According to the project's Web site, the software, called DocVert, "generally" works, though "some embedded objects within MS-Word may not convert successfully." However, DocVert isn't embedded into Word; it is run separately.

– ERIC LAI

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Focus of JavaOne Conference Shifting to Open-source Tools

Users, vendors say technology can help ease development projects

BY HEATHER HAVENSTEIN

OPEN-SOURCE TOOLS are taking center stage this week at the annual JavaOne conference as users seek more flexible options for building Java applications that have built-in user communities to support them.

Oracle Corp. and The Eclipse Foundation, among others, intend to disclose open-source plans at the conference. Meanwhile, Sun Microsystems Inc., the creator and steward of Java, has hinted that it will make several open-source announcements in addition to unveiling a new version of enterprise Java.

IT staffers at E! Entertainment Television Inc. in Los Angeles, will be on the lookout for open-source and commercial Java tools at the show as the company seeks to cut its code-writing chores, said David Johnson, manager of software engineering.

Johnson said the cable television outfit has ramped up its use of open-source Java tools over the past year so it can do extensive work with the software without having to commit to a particular vendor.

"The traditional 30-day 'try before you buy' that vendors give isn't enough to fully evaluate how a tool or framework can be incorporated into an existing enterprisewide application," Johnson said. "Open-source tools give us a jumping-off point to experiment with a new standard."

Johnson also said that open-source communities are more likely than vendors to respond to requests for help with the tools.

Likely Announcements

Oracle plans to announce that it is submitting its AJAX rendering kit to the open-source community, most likely to the The Apache Software Foundation, said Ted Farrell, Oracle chief architect and vice president of tools and middleware.

The Eclipse Foundation will unveil a community portal to promote open-source projects and a new project to promote the creation of model-based development tools in the Eclipse Community, said Ian Skerrett, director of marketing for the Ottawa-based open-source community.

Peder Ulander, Sun's vice president of software marketing, declined to provide details of the company's open-source plans for the conference. Other Sun officials, including Joe Keller, vice president of marketing for SOA and integration platforms, earlier this month said that the company would be making open-source announcements at the show.

Michael Goulde, an analyst at Forrester Research Inc., said he expects users to seek out open-source products more often as adoption of the technology expands within corporate development organizations.

Dimitrios Gianninas, rich Internet application developer at Optimal Payments Inc., said his company in the past year has moved to replace several commercial Java tools with open-source tools. Gianninas is not attending JavaOne.

For example, the Montreal-based electronic payments processor is replacing its Enterprise JavaBean components with the open-source Java-based Spring framework. The company has also replaced BEA Systems Inc.'s Java-based WebLogic Workshop development tools with Xfire, an open-source Java service-oriented architecture framework, Gianninas said.

> **Open-source tools give us a jumping-off point to experiment with a new standard.**
>
> **DAVID JOHNSON,** MANAGER OF SOFTWARE ENGINEERING, E! ENTERTAINMENT TELEVISION INC.

"In all these cases, we've found that these open-source solutions are simple to use and implement [and] give us more flexibility," he said.

In addition, the open-source tools are often built by Java users "who have encountered the same problems as us and thus know what we need and work toward providing better tools for us," Gianninas noted.

Chris Scheuble, co-owner of The Scheuble Group, an IT consulting firm in Sacramento, said that the spread of open-source technologies can also help IT managers better determine whether engineers have the skills needed for a project.

"It is more simple to ask potential employees if they know JBoss' [business process management tool] rather than asking if they know business process management methodologies," said Scheuble, who also is director of the Sacramento Java Users Group.

Still, users noted that open-source tools come with drawbacks, including more bugs and only informal support.

"With a commercial product," Johnson said, "you can make a call and yell at somebody." ▸

ANNOUNCEMENTS

JavaOne

- Sun will unveil a new version of enterprise Java, called Java EE 5.
- Sun will detail partnerships for its Java Runtime Environment with Linux distributors.
- Oracle will announce plans to ship a reference implementation of the Java Persistence API standard for accessing back-end databases.
- BEA will announce support for an undisclosed scripting language.

CTO to Leave CA, Join Venture Firm

BY MATT HAMBLEN

Mark Barrenechea, *who was named CA Inc.'s chief technology officer in January, said last week that he's leaving the software vendor effective June 16 to become a director at Garnett & Helfrich Capital, a venture firm in Menlo Park, Calif. Barrenechea has worked at CA since 2003, also serving as executive vice president of product development and chief technology architect. He spoke with* Computerworld *about his plan to join Garnett & Helfrich, which last fall bought CA's Ingres database and formed a new company to develop and market the open-source software.*

How long has this career transition been in the works? Over the last couple of months. Opportunity, Thomas Edison said, is missed by most people because it comes dressed in overalls and looks like work. For me, it means taking 84 [fiscal] quarters with operating experience in software and now being able to apply that to creating independent companies, and helping build management teams and what I think of as relevancy in the market. That's an opportunity I could not pass up.

Garnett & Helfrich bought Ingres from CA last year and created a new company called Ingres Corp. Is that how you'll work? Garnett & Helfrich is different from other venture firms that take stand-alone businesses and make them public. They're looking for a division or business unit that may not be strategic to a company but could be strategic in the market. So it's working with top technology firms in hardware and software, and spending time looking for assets that are strategic and should be stand-alone and need a new business model.

Many people see the smaller technology vendors as the ones with energy and innovation. Is that part of your motivation to leave? Well, innovation is a big word. Yes, more needs to be written about the difficulty of being innovative within large companies. Contrast how innovations happen with closed-source versus open-source. With open-source, you know right away if your idea is relevant or not, and there are short release cycles. If the product's not relevant, you die pretty quickly.

Did CA feel bureaucratic to you? No. CA has an incredible opportunity in front of them. CA does not feel bureaucratic.

Is your departure related at all to former CEO Sanjay Kumar's recent guilty plea to accounting fraud charges or to concerns that your résumé might be tainted by the company's past legal woes? It's completely unrelated. I joined in 2003 after those issues surfaced. For 16,000 employees at CA, I don't think [they] are focused on the government trial and issues. So, those issues didn't affect my decision to join or to depart from CA. ▸

IT Auditors Turn to Cobit for Sarb-Ox Guidance

Companies use the IT governance guidelines to improve compliance

BY PATRICK THIBODEAU
ORLANDO

Increasingly, to keep themselves and their companies out of trouble, IT auditors are going by the book — the Cobit book on IT governance.

Cobit, formally known as the Control Objectives for Information and Related Technology, is a framework for governing IT and evaluating internal system controls. The guidelines have been around since the early 1990s, but the need to comply with the Sarbanes-Oxley Act is fostering new interest in them, according to attendees at a conference held here last week for IT auditors.

Sarbanes-Oxley "is an amorphous document — it says 'Have controls,' but it doesn't tell you what controls or how to have them," said Scott Thomas, an IT security manager at a large food services company that he asked not to be named.

Thomas said Cobit has given his company "a nice, solid process" to follow on Sarbanes-Oxley compliance, as well as a means for showing external auditors the security controls it has in place.

In Plain English

The framework also gives IT and business managers a common language on system controls, according to Thomas. Without Cobit, communication between the business and IT sides at his company often was "apples to oranges," he said at the conference, which was sponsored by the Information Systems Audit and Control Association (ISACA), based in Rolling Meadows, Ill.

Cobit explains in a "nontechnical way" how to build controls around a business process, said Steven Suther, director of information security management at American Express Technologies, the IT arm of American Express Co. in New York. The framework allows "my business folks to actually understand IT processes for the first time ever," Suther said at the conference.

ISACA offers free downloads of the Cobit framework and a related set of guidelines that are specific to Sarbanes-Oxley. Both were developed by the IT Governance Institute, which works in tandem with ISACA and is also based in Rolling Meadows.

A Version 4 update of Cobit was released in December, and a proposed second edition of the more focused IT Control Objectives for Sarbanes-Oxley document has been made publicly available for review and comment. The draft reflects recent controls-related guidance from the U.S. Securities and Exchange Commission and the Public Company Accounting Oversight Board. The comment period ends June 30.

Take Control

Here's a look at some of the recommendations found in the Cobit guidelines:

- Ensure that response-and-recovery activities are in line with prioritized business needs and that costs are kept at an acceptable level.
- Record information regarding all exceptions to internal controls and ensure that the underlying cause is analyzed and that corrective action is taken.
- Do formal training to ensure that all workers are aware of their compliance obligations. Responsibilities should be clearly explained.

SOURCE: IT GOVERNANCE INSTITUTE, ROLLING MEADOWS, ILL.

Complements ITIL

The controls management focus of Cobit differs from the data center orientation of the IT Infrastructure Library. But the two frameworks are complementary, and the latest version of Cobit includes improved integration with ITIL, said Robert Stroud, an IT service management evangelist at CA Inc. and a contributor to Cobit.

ITIL is focused on IT processes, such as how a help desk handles trouble tickets submitted by end users. Cobit takes issues to a higher level inside a company by focusing on meeting business needs, Stroud said. He noted that IT staffers who want to discuss, for instance, how much storage capacity is available aren't necessarily giving business managers the information they really need. "The business just cares about the ultimate service," Stroud said.

Meanwhile, the city of Phoenix is in the planning stages of a Cobit implementation, according to Lance Turcato, the deputy city auditor. Turcato, who previously was involved in a Cobit implementation within the private sector, said the framework can foster a better partnership among IT, business users and corporate auditors. ▸

Symantec Unveils Plan to Integrate Veritas Products

BY SHARON FISHER
SAN FRANCISCO

Symantec Corp. last week announced plans to pull together its various storage, server, application and database management technologies into an integrated offering.

At the annual Vision conference here for users of the former Veritas Software Corp., Symantec unveiled Data Center Foundation, which the company said will one day fully integrate the different tools it inherited when it acquired Veritas last July.

Officials from Cupertino, Calif.-based Symantec wouldn't comment on when the common integration platform will be completed. The company did say that "elements" of the technology have been deployed in some of its products and that integration features will be added gradually as new versions of its storage and server products are released in the coming months.

Over time, Symantec added, Data Center Foundation will provide users with consistent installation processes, user interfaces, workflows and license management policies.

"It's Utopia for me," said Brad Wood, senior director of enterprise technology at Corrections Corp. in Nashville, a private operator of prisons under government contracts.

Wood said the company already uses most of the storage products included in the Data Center Foundation blueprint. But, he said, "being able to see it under one business unit now, and the connections and its future — it's huge."

'Unifying Capability'

Data Center Foundation initially includes four main components, each consisting of several products. One is Server Foundation, a suite of server management tools that also was announced last week.

The individual products to be integrated include backup, media management, archiving, virtualization, server clustering, application management, provisioning and configuration management tools.

"If I can do less integration and work with our partners to deliver that unifying capability, I can focus more on cost takeout, efficiency of service, and service innovation itself," said Larry Lozon, vice president of data center services at Electronic Data Systems Corp.

Rick Villars, an analyst at IDC in Framingham, Mass., said the Data Center Foundation capabilities are similar to those available in storage virtualization devices such as TagmaStore from Hitachi Data Systems Corp. and InVista from EMC Corp.

"One of the big drivers behind storage virtualization was managing the proliferating number of servers connected to storage," Villars said.

Wood said he expects that the new system will be able to handle a variety of tasks, such as allocating new disks in response to high demand for data, and then report on them. Currently, Corrections Corp. has to manually add disks to arrays as needed, he said.

Villars said the Data Center Foundation plan is a good first step for Symantec. But in the long run, he said, "they need to connect the pillars into a more coherent system. That's the next step."

Over the long term, the various products in Data Center Foundation will be fully integrated using a configuration management database, said Robert Soderbery, vice president of product management for Symantec's data center management group. The different components "are silos right now," he acknowledged.

Soderberry said the integration plan offers many opportunities for Symantec, including an effort "to bridge the gap between the operational and the administrative world."

For example, he explained, if an operations manager saw an alert showing that a server was down, he could fix it himself rather than having to contact an expert to do it. ▸

NEW PRODUCT

Symantec Data Center Foundation

- Veritas NetBackup
- Veritas Storage Foundation
- Veritas Server Foundation
- Veritas i3 application performance management software

BRIEFS

Dell Expects to Miss Q1 Financial Goals

Dell Inc. warned that it will miss its forecast for quarterly profits and barely match its lowest estimate for revenue. Dell now expects revenue of $14.2 billion; its original estimate was $14.2 billion to $14.6 billion. The company attributed the shortfall to a decision to cut prices to boost market share. That strategy will produce a revenue dip in the second half of the first quarter but generate strong growth in the future, Dell said.

AOL to Cut 1,300 Call Center Jobs

AOL LLC, facing increased competition and a maturing online audience, will lay off 1,300 workers at AOL customer service call centers in Arizona, Utah and Florida. The company said it will close its 10-year-old First Coast Tech Parkway customer support facility in Jacksonville, Fla.; jobs will also be cut at call centers in Tucson, Ariz., and Ogden, Utah.

Symantec's Profits Fall in First Quarter

Nearly a year after its acquisition of Veritas Software, Symantec Corp. continues to struggle to find a way to boost profits. Its first-quarter earnings declined slightly but did beat Wall Street's expectations.

SYMANTEC BY THE NUMBERS

	REVENUE	PROFIT
Q1 '06	$1.2B	$119M
Q1 '05	$712M	$120M

EMC Buys Product, Services Vendors

EMC Corp. has acquired Kashya Inc. for about $153 million. The acquisition of the vendor of data replication and protection software is part of EMC's effort to provide a one-stop shop for storing, managing, accessing and securing corporate data. EMC has also bought Interlink Group Inc., an information systems services provider specializing in Microsoft software.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL

MATTHEW FAULKNER

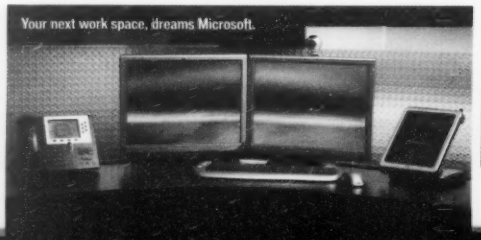
Microsoft: The Future of Work . . .

. . . is here. Well, almost. Jeff Raikes, president of Microsoft Corp.'s business division, says most of the visitors to the Center for Information Work (CIW) on the company's headquarters campus "are the high-level technology leaders in a company. Strategic thinkers. They're not necessarily thinking holistically about end-user productivity." That is, until they see the CIW. "Then they get it," Raikes claims. What they get is Microsoft's vision for the tools that information workers will use in the next five to seven years — or sooner, in some cases.

Oddly enough, one of the CIW's most prominent contributions thus far is hardware, not software. Tom Gruver, the center's director, points to the RingCam, a videoconferencing device that Microsoft will release later this year under the product name RoundTable.

Nonetheless, the emphasis at the CIW, which is beginning its fourth year of operation, is on software. Highlighted in the latest version of the CIW's prototype office-of-the-future technology are the concepts of presence and process. Gruver says the ability to detect whether users are available via various modes of communication — e-mail, instant messaging, voice and more — will be integrated into future software so it will always know the best way to contact someone. That is meant to ensure that worker productivity is never held hostage to the roaming proclivities of individuals who play key roles in a workflow process.

The CIW may also be the source for a new method of transmitting documents wirelessly at short range — flicking. According to Gruver, Microsoft has been exploring ways in which a Windows device can detect a nearby system's ideal communication protocol. He says a simple hand gesture could then direct a PC to "flick" documents between machines. If that catches on, "Flick me" may become the new buzzphrase in the office of the future.


Your next work space, dreams Microsoft.

Poll your printers to see usage data . . .

. . . and other information. Brian Anderson, vice president of sales and marketing at Netaphor Software Inc. in Irvine, Calif., argues that many IT managers don't have a true sense of the "printer fleet" floating around their companies. Therefore, printer assets often are underutilized or misused, he says. For example, some heavy-duty printers are assigned to workgroups that don't get the most out of them. To the rescue comes Netaphor Site Audit 1.0, a software utility that gathers data on printers, even ones that are locally attached to PCs. By year's end, Site Audit will be able to audit scanners and fax machines as well and will automatically send asset info to your configuration management database, Anderson says. The software is available this week; pricing starts at $5 for each end user who uses a printer.

1,100 PAGES printed in office per month by average worker, says Buyers Laboratory Inc.

Become an open-source app . . .

. . . development maestro. "Open-source-style development is now outpacing traditional software development practices," claims Winston Damarillo, executive chairman at Mergere Inc. in Marina del Rey, Calif. Mergere's Maestro software knits together three technologies from The Apache Software Foundation — Maven, Continuum and the Maven Repository Manager — that give developers a quick but comprehensive view of app dev projects. Maestro is free, of course, but you can pay Mergere for support, starting at $5,000 per project annually. With Maestro, you can see reports about your projects — percent completed, number of bugs, contributions of individual developers and more. You can also glean how well an application integrates with Web browsers, operating systems and other software. And you can set and enforce policies on which open-source technologies are permitted to be used in a project. Maestro becomes available today.

Be a Maven maestro, says DAMARILLO.

IT-friendly USB fobs could improve . . .

. . . data security and portability. Since end users are probably going to plug USB storage fobs into their PCs so they can take data with them, you might as well get devices that can be managed. So contends John Jeffries, senior director of marketing at RedCannon Security in Fremont, Calif. It just so happens that RedCannon lets you apply controls to its KeyPoint fobs. KeyPoint encrypts all stored data, and when it's plugged into a PC, it does a quick scan to ensure that there's no malware on the system that could threaten the data. It also lets you remotely destroy data if a fob is lost or stolen. RedCannon offers 1GB fobs now and will add 4GB units next month, Jeffries says. Pricing starts at $120 per device. ▸

RedCannon's KeyPoint USB fob

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BRIEFS

Novell Unveils Suite Targeting Microsoft

Taking a swing at Microsoft Corp.'s dominance on the corporate desktop, Novell Inc. has brought out the Novell Open Workgroup Suite, which repackages several open-source applications and tools under new licensing terms. The company hopes to take advantage of debates within businesses over whether to upgrade to Microsoft's new Vista operating system and Office 2007 products.

Sun Names Douglas To New Eco VP Post

Sun Microsystems Inc. has named David Douglas vice president of eco-responsibility. Douglas will work to boost the company's strategy of ensuring that products meet environmental standards. He had been vice president of engineering in Sun's Solaris unit before leaving in 2001 to found ConnecTerra Inc. In his new post, Douglas reports to Chief Technology Officer Greg Papadopoulos.

Cisco's Q3 Revenue Is Up, Profits Flat

Cisco Systems Inc. reported increased revenue and flat profits for its third quarter. CEO John Chambers told analysts that the sales growth occurred across the company's businesses.

CISCO BY THE NUMBERS

	REVENUE	PROFIT
Q3 '06	$7.3B	$1.4B
Q3 '05	$6.2B	$1.4B

SOA Software Buys Web Services Firm

SOA Software Inc. has acquired Web services networking company Blue Titan Software Inc. Terms of the deal weren't disclosed. Los Angeles-based SOA Software, a maker of service-oriented architecture governance, security and management tools, said Blue Titan's tools can help users run services in multiple application servers or enterprise service buses.

SAP to Add Marketing Piece To Hosted CRM Service

Will demonstrate the new CRM On-demand component at Sapphire

BY MARC L. SONGINI

At its annual Sapphire user conference in Orlando this week, SAP AG will demonstrate a new SAP marketing component that was added to its SAP CRM On-demand service last week.

SAP officials said the company also plans to update users on the status of its service-oriented architecture platform, Enterprise Services Architecture (ESA), and its key component, NetWeaver.

Called SAP Marketing, the new component of the hosted CRM system includes campaign management, lead management, customer segmentation and other features, an SAP spokesman said.

SAP Marketing also includes analytical capabilities that will allow users to evaluate the chances for making successful sales to specific prospects, he said. The marketing component supports a variety of languages, including French, Korean, Portuguese and Chinese, according to the spokesman.

SAP first disclosed the new version of the SAP Marketing component for the 3-month-old hosted CRM offering last week, but company officials said its first public demonstration will come during the user conference.

Aaron Nichols, general manager of IT Canada Post Corp. in Ottawa, said he is attending the conference to get information on how to best upgrade the postal service's SAP ERP and CRM applications.

Nichols said he is also hoping to find out more about Duet, the joint SAP-Microsoft Corp. offering that was unveiled earlier this month. That product links SAP applications with Microsoft Office. Most Canada Post systems run on Microsoft operating systems, according to Nichols.

Analysts suggested that SAP officials demonstrate to tentative users at the conference the value of ESA and NetWeaver, the key pieces of the company's technology road map.

Joshua Greenbaum, an analyst at Berkeley, Calif.-based Enterprise Applications Consulting, said that some companies are hesitating to commit to an expensive migration to the proprietary ESA.

"They need to continue to talk about the value of the ESA and NetWeaver. Many customers are struggling with the overall issue of 'How am I going to justify this?' " Greenbaum said.

Rebecca Wetteman, an analyst at Wellesley, Mass.-based Nucleus Research Inc., said SAP has to demonstrate that the new SOA-based architecture will actually help customers craft reusable business processes.

"They need a strong story," she said, noting that Oracle is in the process of explaining plans for its next-generation Fusion applications.

SAP Marketing On-demand is available now.

Pricing for SAP CRM On-demand with SAP Marketing On-demand is $125 per user per month, $50 more than the stand-alone CRM On-demand price tag.

SAP Marketing On-demand

The new component of the hosted CRM system:

- Is an add-on to SAP CRM On-demand.
- Provides campaign and lead management capabilities.
- Includes a customer segmentation feature.
- Supports multiple languages, such as French, Korean, Portuguese and Chinese.
- Adds $50 to price of SAP CRM On-demand.
- Is available now.

IBM Unveils Lotus Notes-SAP Links

IBM LAST WEEK brought out a pair of tools it said can provide access to SAP business applications through its Workplace and Notes desktop software.

The new tools, IBM Workplace for SAP Software and IBM Lotus Notes Access for SAP, use service-oriented architecture technology to integrate the desktop products with SAP's ERP and CRM applications. Upgraded SAP software isn't necessary to integrate the systems, according to IBM.

IBM unveiled the tools on the eve of SAP's Sapphire user conference. A week earlier, SAP and Microsoft Corp. announced a jointly developed product that links SAP's business applications with Microsoft's Office desktop products. It will begin shipping in June.

Rod Masney, global IT architect at Owens-Illinois Inc., a Toledo, Ohio-based maker of packaging materials, said he expects to evaluate the new IBM offerings.

The firm runs mySAP ERP 2004 software and other applications along with Lotus Notes, he said.

Masney said he hopes to learn more about the offerings at SAP's Sapphire and Association of SAP Users Group conferences to be held this week in Orlando.

Larry Bowden, vice president of workplace solutions at IBM, noted that the Duet software built by Microsoft and SAP to link SAP software and Microsoft Office can require upgraded SAP software.

IBM has included some links to SAP in its Notes offering since 1998, Bowden said. The links had been embedded in the Notes software and sold as part of the desktop package.

The new products, he said, extend the links between Notes, Workplace and the SAP applications.

For example, the Notes tool provides users of the Lotus product with workflow links to SAP applications, according to Bowden.

Both new IBM tools add links between the IBM software and the contact management, vacation and time-leave processes in SAP applications.

IBM Workplace includes a browser-based front end to SAP applications, Bowden said. The interface will include scoreboards and dashboards with key performance indicators, he added.

IBM Workplace for SAP Software and IBM Lotus Notes Access for SAP will be available by May 30.

IBM Workplace for SAP Software requires the WebSphere Portal software and is priced from $149 to $399 per user.

IBM Lotus Notes Access for SAP is available without charge for Lotus Notes customers. The capabilities will continue to be incorporated into the Notes software, according to IBM.

– MARC L. SONGINI

INNOVATIONS IN access

Florida Guardian ad Litem Saw the Future of Child Advocacy.

Citrix Provided Access.

"Custody rulings. Foster care. Adoptions. Our founding vision was to give every abused and neglected child in Florida a strong advocate in court. Two years later, we're well on our way. Today, program staff, attorneys and over 5,000 volunteers represent more than 27,000 children. Instead of information in file drawers scattered all over the state, Citrix software gives advocates secure access to our case management system from anywhere. Resources are precious, so we must apply them wisely, not waste time chasing data. These kids depend on us. That's why we're depending on Citrix to take us the rest of the way to advocate for every Florida child in need."

JOHNNY C. WHITE
CIO
Florida Guardian ad Litem Program

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CITRIX®

Continued from page 1

Avaya

"was our most lively topic of discussion," said Renee Seay, CEO of the International Alliance of Avaya Users Inc. (InAAU) in Dedham, Mass. "Nobody used any four-letter words, but it was a pretty aggressive discussion."

During the sessions, several customers complained about receiving price quotes from Avaya that included steep cost increases, Seay said. She added that the user group asked Avaya to provide within 30 days a more complete explanation of the pricing methodology for the specific quotes that those users received.

"Avaya doesn't see more than a minimal financial impact on our members, and I hope that's true, but InAAU would like to look at the facts," said Seay, who is a vice president at Franklin Resources Inc. in San Mateo, Calif. If the user group "doesn't get some more good data from Avaya, we will push hard," she said.

Several other Avaya users said they have heard the concerns voiced about the pricing changes and want to get more details from the Basking Ridge, N.J.-based vendor.

Time Inc. has "some huge upgrades coming, and it's going to be very expensive," predicted Glenn Stephenson, manager of network and telecommunications administration at the publishing unit of Time Warner Inc. For example, Time plans to upgrade to Communication Manager and related hardware, said Stephenson, who is president of the Alabama Avaya Users Group in Birmingham.

Con Griffin, director of solutions development at Avaya, led the sessions at the InAAU conference and said that a total of about 125 users attended, with perhaps a dozen airing complaints in reaction to price quotes. Many of the attendees said they were unaware of the pricing changes, he added.

Griffin said the new pricing model was implemented last year on Avaya's call center products and was then applied to Communication Manager 3.1 — the company's main IP telephony software — in February. Avaya's unified messaging software will be brought under the new structure in the next few weeks, he said.

Prices "may" increase at large customer sites, affecting perhaps 10% of Avaya's installed base, Griffin said. But he noted that the company is willing to consider making adjustments for such users.

Shift in Focus

The pricing model shifts Avaya's major software products from traditional right-to-use licenses to per-user ones and sets a sliding scale of prices across nine tiers, based on the number of licenses being bought (see chart).

One of Avaya's goals is to enable customers to buy products in a consistent way, Griffin said. In the past, some of Avaya's applications were priced based on the number of ports being installed, while the cost of other products was based on the hardware they ran on or the network topology that a customer was using. "It was piecemeal," Griffin said.

Jane Kawamura, chief technology officer for the InAAU and a manager at Hewlett-Packard Co., said her understanding is that the new strategy also was meant to make Avaya's pricing more software-driven than hardware-driven.

Allan Sulkin, an analyst at TEQConsult Group in Hackensack, N.J., said he learned about the pricing changes from Avaya in January and added that the vendor still hasn't sufficiently explained some of the details to him.

The new pricing could significantly lower overall software costs for some customers, according to Sulkin. But overall, he said, the pricing scheme "sounds a lot like a weight-loss plan where the promoters say you'll lose 60 pounds but the average loss is only 8 ounces." ◗

New Pricing

Avaya says its user-based software licensing model:

- Sets prices for the company's major software products across nine tiers, ranging from one to five licenses at Tier 1 to 1,000 or more at Tier 9.
- Provides improved license portability, making it easier for users to shift software licenses from one facility to another.
- Bundles in Session Initiation Protocol software and mobility features that previously were priced separately.

Pa. Election Set Despite Potential E-voting Flaw

Diebold software reinstalled for Tuesday's vote

BY MARC L. SONGINI

Officials in Pennsylvania this month have been rushing to apply a temporary fix for a security vulnerability in their e-voting devices before tomorrow's federal and state primary elections. Left unaddressed, critics said, the flaw could compromise the vote.

Pennsylvania Secretary of the Commonwealth Pedro Cortes on May 2 issued a directive to election departments statewide about the possible flaw in Diebold Elections Systems Inc.'s AccuVote TSX e-voting machines. The warning was announced days after Diebold alerted Cortes' office to a "potential security vulnerability in the system installation and upgrade mechanism" of the AccuVote touch-screen systems.

Statewide, 3,338 of the touch-screen machines will be used in tomorrow's election; more will be installed for the general election in November, said a spokeswoman for Cortes.

According to Diebold, the vulnerability is in the AccuVote systems' PC card slot, where unauthorized software could be installed without detection. The slot makes it easier for elections officials to install upgrades to the TSX machines as well as Diebold's AccuVote TS models, a company spokesman said. He didn't provide a timetable for fixing the flaw.

In its note to Pennsylvania officials, Diebold promised to eventually create a software-based "permanent solution." The spokeswoman for Cortes said the Allen, Texas-based unit of Diebold Inc. claimed that there was a "very low risk" that elections could be affected in the meantime. But Cortes reacted quickly to ensure that tomorrow's elections run smoothly, she said.

The secretary's office called on all Pennsylvania counties to reinstall the machines' system software in order to overwrite any unauthorized programs that may have been downloaded onto the systems. It also supplied each district with memory cards containing ballot information, to insert into the affected slot to update the voting machines.

Kenneth Leffler, elections director for Carbon County in eastern Pennsylvania, said that addressing the flaw required a lot of work, even though the risk it posed was minimal.

He said his team worked with six Diebold technicians to reinstall the system software, a process that took about 15 minutes on each of the county's 110 machines.

"Quite frankly, I don't see how [tampering] could have happened," Leffler said.

However, Brad Friedman, who closely covers electronic voting on his BradBlog.com site, called the flaw "immensely serious" and claimed that "Diebold is not letting [other] state officials know this."

The Diebold spokesman countered that the company routinely reaches out to all of its customers when machines become vulnerable to such flaws. "Anything of interest to one state, we reach out through our network and make them aware of it," he said.

However, representatives of the secretaries of state in Texas, California and Ohio, all users of the affected Diebold systems, said they have not received notification of the flaw from Diebold.

The Diebold spokesman said that the company uses various methods to contact states, including personal notification of officials through sales and support channels.

The spokesman also said that Diebold is searching for technology that can lock the affected machines to prevent such intrusions and would alert officials should any tampering occur. ◗

SEC Begins Informal Inquiry Into Diebold

THE U.S. Securities and Exchange Commission is investigating e-voting and automated teller machine maker Diebold Inc., the company confirmed last week.

Diebold divulged in its quarterly 10-Q report that it was recently informed that the agency has initiated an "informal inquiry" into its revenue-recognition policy.

Diebold was quick to point out that the SEC's letter notifying it of the investigation said the action does not indicate that any laws have been broken.

In an e-mail, a Diebold spokesman said the company is cooperating with the SEC inquiry. "As we said in the 10-Q filing, we cannot predict the length, scope or results of this informal inquiry or the impact, if any, on results of operations," he said.

"It's important to note that the SEC specifically said in its letter to Diebold that this inquiry should not be construed as an indication by the SEC that there has been any violation of the federal securities laws," the spokesman said.

– MARC L. SONGINI

Utility May Face Investigation for Selling Unscrubbed Drives

BY SHARON FISHER

State and federal regulators have not yet determined whether Idaho Power Co. will face penalties after a salvage operator offered unscrubbed hard disk drives from the utility for sale on eBay Inc.'s auction Web site.

The utility had sold 230 disks to a salvage operator, which sold 84 of them on eBay. Most of the drives have been returned to Idaho Power. The incident was disclosed earlier this month.

The Federal Trade Commission would not confirm or deny whether the incident is under investigation.

"In theory, there are different statutes that might come into play, but whether it was a basis for action would depend on the underlying circumstances," said Alain Sheer, an attorney in the bureau of consumer protection at the FTC.

The Idaho Public Utilities Commission, which governs Idaho Power, will only investigate the incident if it has a direct financial impact on rate payers, a spokesman said.

If Idaho Power were to file a request for a rate increase that included costs related to the incident, "we'd probably deny those costs," he said. Otherwise, "the only way we would be involved is if a rate payer filed a complaint that he was harmed."

Failure to Respond

Meanwhile, Karl Hart, director of IT at the University of Cincinnati who bought unscrubbed Idaho Power drives over eBay, said he publicly disclosed the problem only after the utility failed to respond to his inquiries for a month.

Hart bought 10 drives, in two lots of five, from eBay for $40 per lot. "That batch came from Idaho Power completely full of data, not cleaned up at all," he said.

Data on the drives included diagrams of the electric supplier's power grid; confidential data stored by the legal department about lawsuits, contracts, property transactions and complaint letters; and employee data, including Social Security numbers, birth dates and payroll information, Hart said. "There were hundreds of thousands of files on these drives," he said.

Hart said he has been contacted by Blank Law & Technology PS in Seattle, a law firm hired by Idaho Power to investigate the situation.

The Boise, Idaho-based utility, which supplies electricity to customers in southern Idaho and eastern Oregon, said it hired Grant Korth of Nampa, Idaho, to recycle the drives.

Hart said that Idaho Power should have required its outsourcing firm to certify that the drives had been cleaned. ▸

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The Motion LS800 is the first to give you full desktop functionality in an ultra-mobile slate Tablet PC – it's the only PC you'll need.
Motion recommends Microsoft® Windows® XP Tablet PC Edition.
The LS800 Tablet PC's unique size and remarkable power delivers outstanding mobile performance and productivity with Intel® Centrino® Mobile Technology.
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GLOBAL DISPATCHES An International IT News Digest

U.K. Agrees to Extradite Alleged Hacker to U.S.

LONDON

A JUDGE AT the Bow Street Magistrates' Court last week approved a U.S. government request to extradite an unemployed systems administrator who allegedly caused $700,000 in damage by hacking into U.S. military and government computers.

U.S. prosecutors allege that Gary McKinnon, a 40-year-old London resident, significantly disrupted systems from February 2001 to March 2002, causing damage that jeopardized the operations of U.S. military networks.

Among other charges, prosecutors claim that McKinnon deleted files from computers at Naval Weapons Station Earle, a U.S. Navy base in New Jersey. That caused the shutdown of about 300 systems in the aftermath of the Sept. 11, 2001, terrorist attacks, according to U.S. authorities.

McKinnon, who said he would appeal the extradition order, has acknowledged that he accessed systems owned by the Navy, the U.S. Army, the U.S. Department of Defense and NASA. But he maintains that he was researching UFOs and that he didn't damage any of the computers.

McKinnon's attorneys had feared that he could be classified as an enemy combatant by the U.S. government and held indefinitely. But the U.S. said it plans to try McKinnon as a conventional defendant in U.S. District Court in Virginia.

■ JEREMY KIRK, IDG NEWS SERVICE

Nasscom to Create Data Security Watchdog

DELHI, INDIA

THE NATIONAL Association of Software and Service Companies (Nasscom) is creating an organization that will develop best practices for data security and privacy within India's IT services, call center and business process outsourcing industries and then monitor their use.

"We are planning a self-regulatory organization that will be initially set up by Nasscom but will operate independently," said Sunil Mehta, a vice president at the Delhi-based trade group. "We want to change the rules of outsourcing to India."

The Nasscom initiative comes in the wake of allegations in the U.S. and the U.K. that Indian call center workers have stolen and illegally sold data. The best-practices organization will be established later this year, Mehta said, adding that a CEO and board of directors will be elected by the new group's membership.

■ JOHN RIBEIRO, IDG NEWS SERVICE

GLOBAL FACT

60M

Projected number of Chinese bloggers by year's end, up from the current total of 36.82 million.

SOURCE: BAIDU.COM, A BEIJING-BASED INTERNET SEARCH VENDOR

Philippines Not Seen as Site for Software Work

MANILA

WHILE THE Philippines has become a top destination for offshore call center work, it still lags far behind India and China as a center for software development, two U.S. executives said during presentations at a conference here last week.

"The Philippines doesn't even come to mind," Stephanie Childs, vice president of government affairs at the Information Technology Association of America, said at the Software Innovations Philippines 2006 conference.

Randall Reade, president of software exporter Zipzone Ltd. in Washington, said that rising costs in India are prompting some U.S. companies to look elsewhere for offshore development services.

But, Reade added, "frankly, no one even has an image of the Philippines" as a location for software development.

■ LAWRENCE D. CASIRAYA, COMPUTERWORLD PHILIPPINES

Compiled by Mike Bucken.

Briefly Noted

Internode Systems Pty. in Adelaide, Australia, has inked a three-year deal valued at 2.2 million Australian dollars ($1.7 million U.S.) to provide Internet services to the state government of South Australia. The deal covers 70,000 workers and includes the development of redundant 1Gbit/sec. fiber-optic links to the state's Internet Gateway portal.

■ COMPUTERWORLD TODAY (AUSTRALIA) STAFF

The Philippine government is pushing for the adoption of newer Internet technologies, particularly IP Version 6. Angelo Timoteo Diaz de Rivera, a member of the Philippines Commission on Information and Communications Technology, said IPv6 will first be adopted in government offices, which currently lack any IP infrastructure. It will then be aimed at businesses, he said.

■ JENALYN M. RUBIO, COMPUTERWORLD PHILIPPINES

Cisco Systems Inc. and T-Systems International GmbH in Hamburg, Germany, have agreed to jointly develop smart-tag systems for logistics and retail companies. Cisco and the IT services provider said they will first work with German companies and later expand to the rest of Europe. They didn't disclose when the systems will be available.

■ JOHN BLAU, IDG NEWS SERVICE

Wells Fargo Loses Computer With Confidential Data – Again

Incident is latest in series of snafus at bank

BY JAIKUMAR VIJAYAN

For the fourth time in the past 30 months, Wells Fargo & Co. is notifying customers about the theft of a computer, this one containing data on mortgage customers and prospective clients.

The San Francisco-based bank on May 5 posted a statement on its Web site saying that the computer, which belonged to its mortgage group, was reported missing while being transported between Wells Fargo facilities by an undisclosed global express shipping company.

The company did not disclose when it discovered that the computer was missing.

The stolen system contained various types of customer data, such as names, addresses, Social Security numbers and mortgage loan account numbers, the company said in the statement.

So far, there's no indication that the information kept on the computer has been misused, said a company spokesman. According to the company's statement, "the computer has two layers of security, making it difficult to access the information."

Wells Fargo is currently sending letters to inform individuals whose data was stored on the computer about the incident. The letter also advised the affected customers and prospects of what steps they can take to mitigate exposure to identity theft.

The company said it will pay for a one-year subscription to a credit-monitoring service for affected individuals.

Mum's the Word

The Wells Fargo spokesman wouldn't disclose how many customers were affected by the theft or when it occurred, citing an ongoing criminal investigation by undisclosed law enforcement authorities.

The company also declined to describe the computer involved in the incident.

In its statement, the bank said that law enforcement authorities had initially asked Wells Fargo to delay its notification of affected customers and prospects because of fears that such a move could jeopardize the investigation.

"At this point, law enforcement believes the equipment was stolen for the hardware," not for the data it contained, the spokesman said.

For Wells Fargo, the incident is the latest in a series of embarrassing and nearly identical data breaches that have taken place over the past two and a half years.

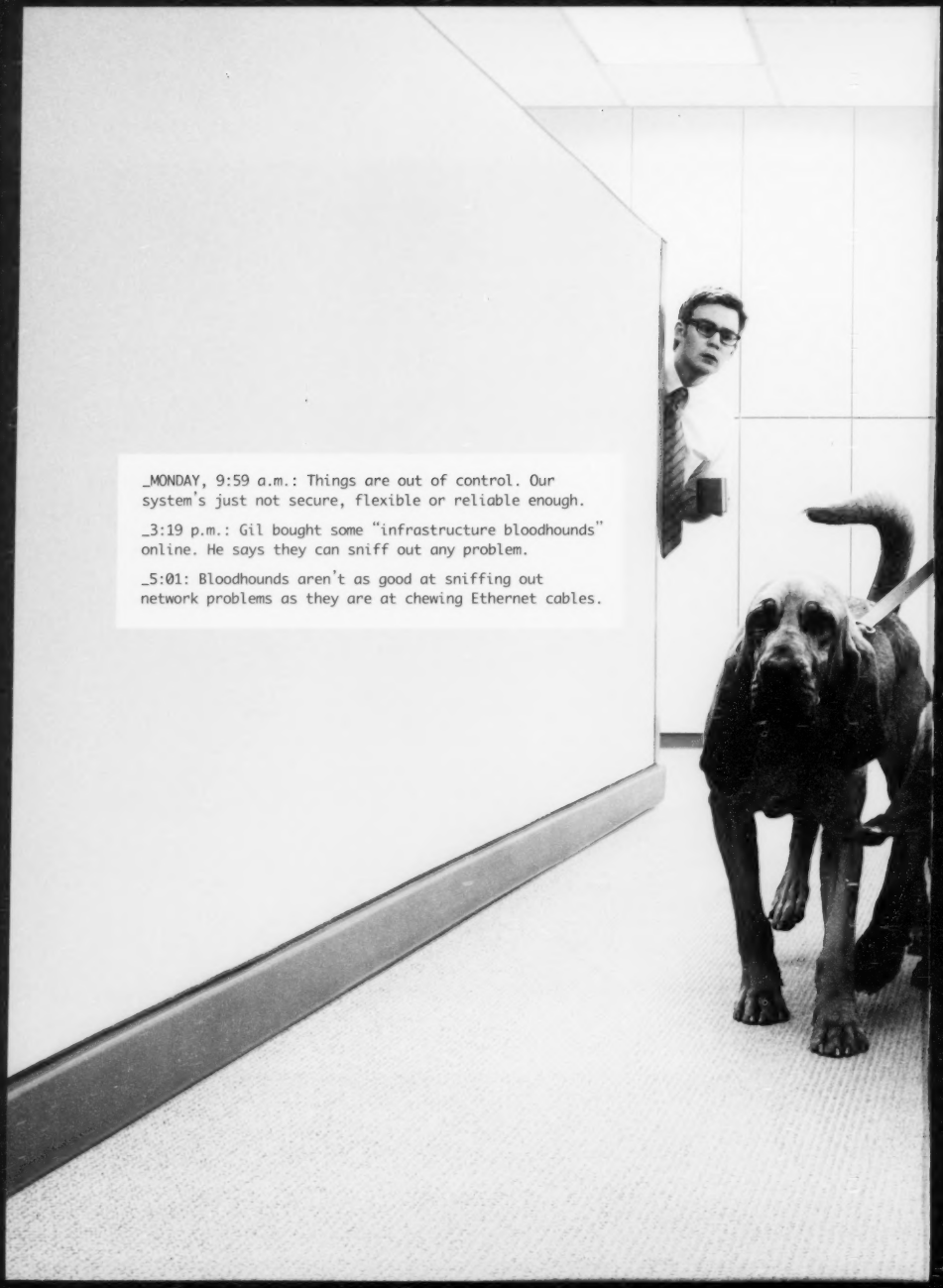
In November 2003, the names, addresses and Social Security numbers of thousands of Wells Fargo customers were compromised when someone broke into the office of a consultant working for the bank and stole a computer containing the data.

In November 2004, the company announced that three laptops and one desktop computer containing personal data on thousands of the bank's borrowers were stolen from an Atlanta-based subcontractor that printed monthly statements for Wells Fargo.

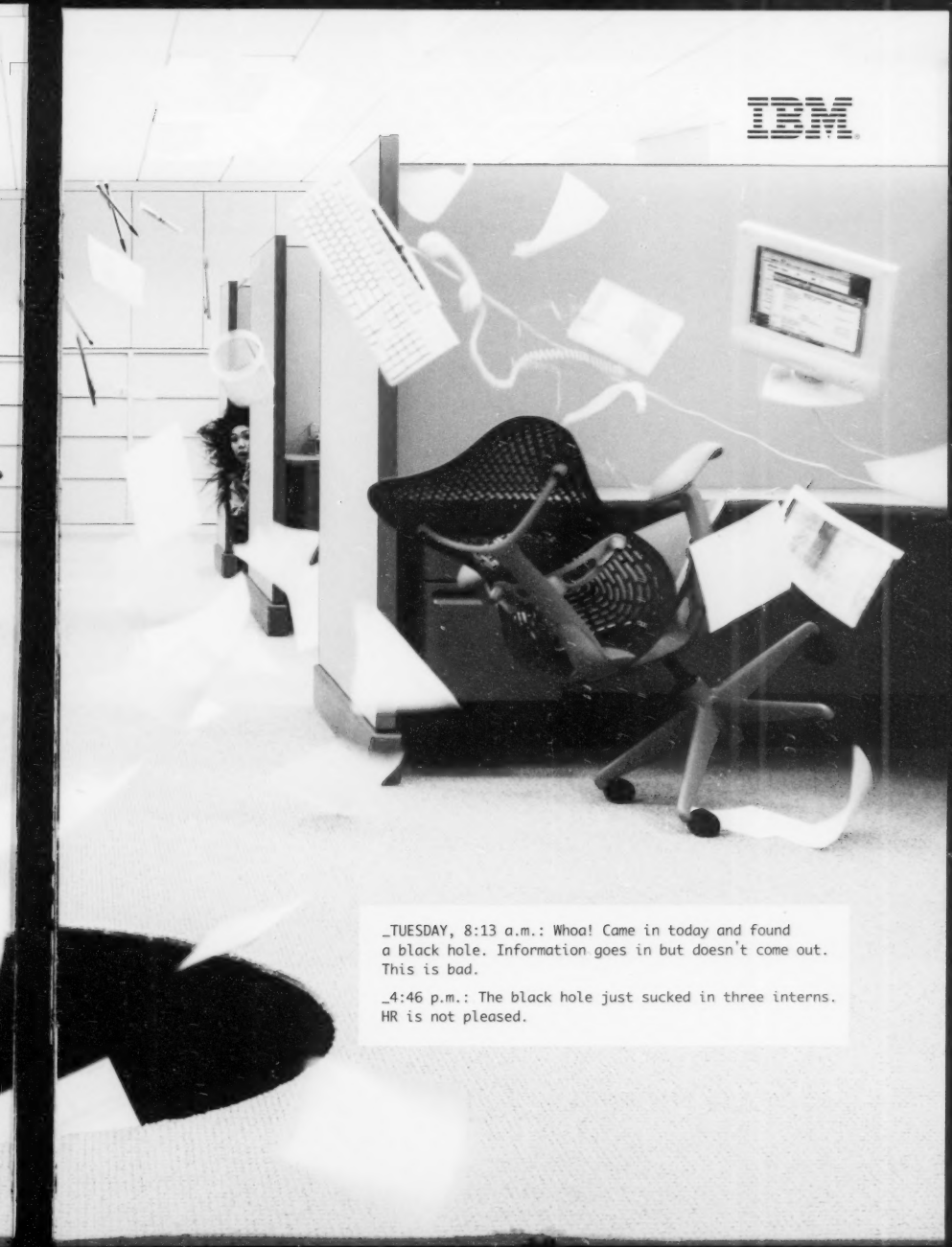
That incident prompted two of the affected individuals to sue the bank for negligence and breach of contract. The case was decided in the bank's favor in March.

And in February 2004, a laptop containing confidential information on more than 35,000 Wells Fargo customers was lost by a company employee when it was left in a car that was stolen from a gas station.

_INFRASTRUCTURE LOG
_This has been the worst week of my life. Seriously.


_MONDAY, 9:59 a.m.: Things are out of control. Our system's just not secure, flexible or reliable enough.
_3:19 p.m.: Gil bought some "infrastructure bloodhounds" online. He says they can sniff out any problem.
_5:01: Bloodhounds aren't as good at sniffing out network problems as they are at chewing Ethernet cables.

IBM



_TUESDAY, 8:13 a.m.: Whoa! Came in today and found a black hole. Information goes in but doesn't come out. This is bad.

_4:46 p.m.: The black hole just sucked in three interns. HR is not pleased.

_WEDNESDAY, 9:45 a.m.: Arghh! We're so slow. It takes people forever to access...everything. No one can collaborate, no one can make smart decisions quickly enough. There's got to be a better way.

_12:22 p.m.: Gil says he's found one: aerodynamic bodysuits. He says everyone will be able to work faster and collaborate better now.

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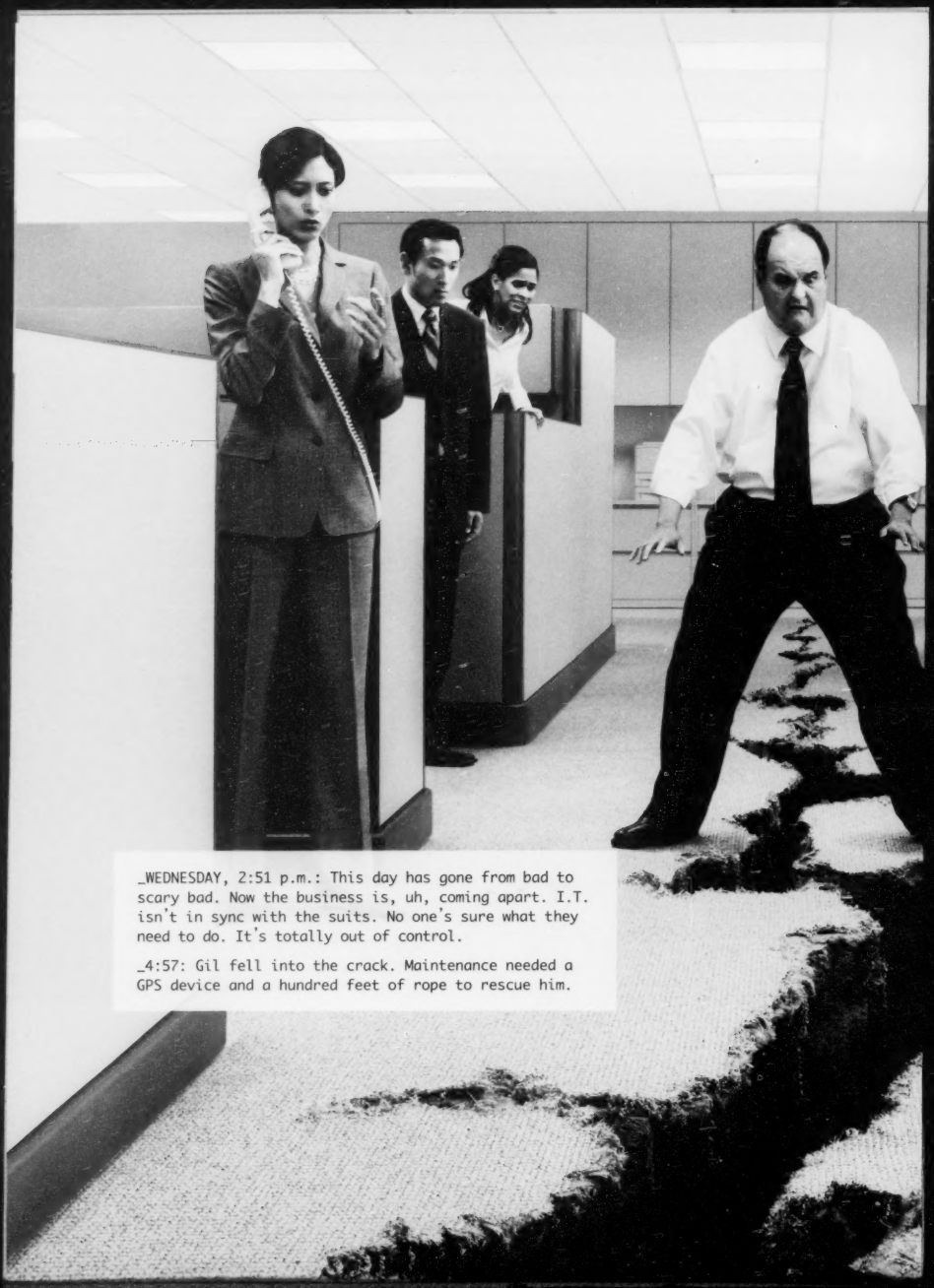
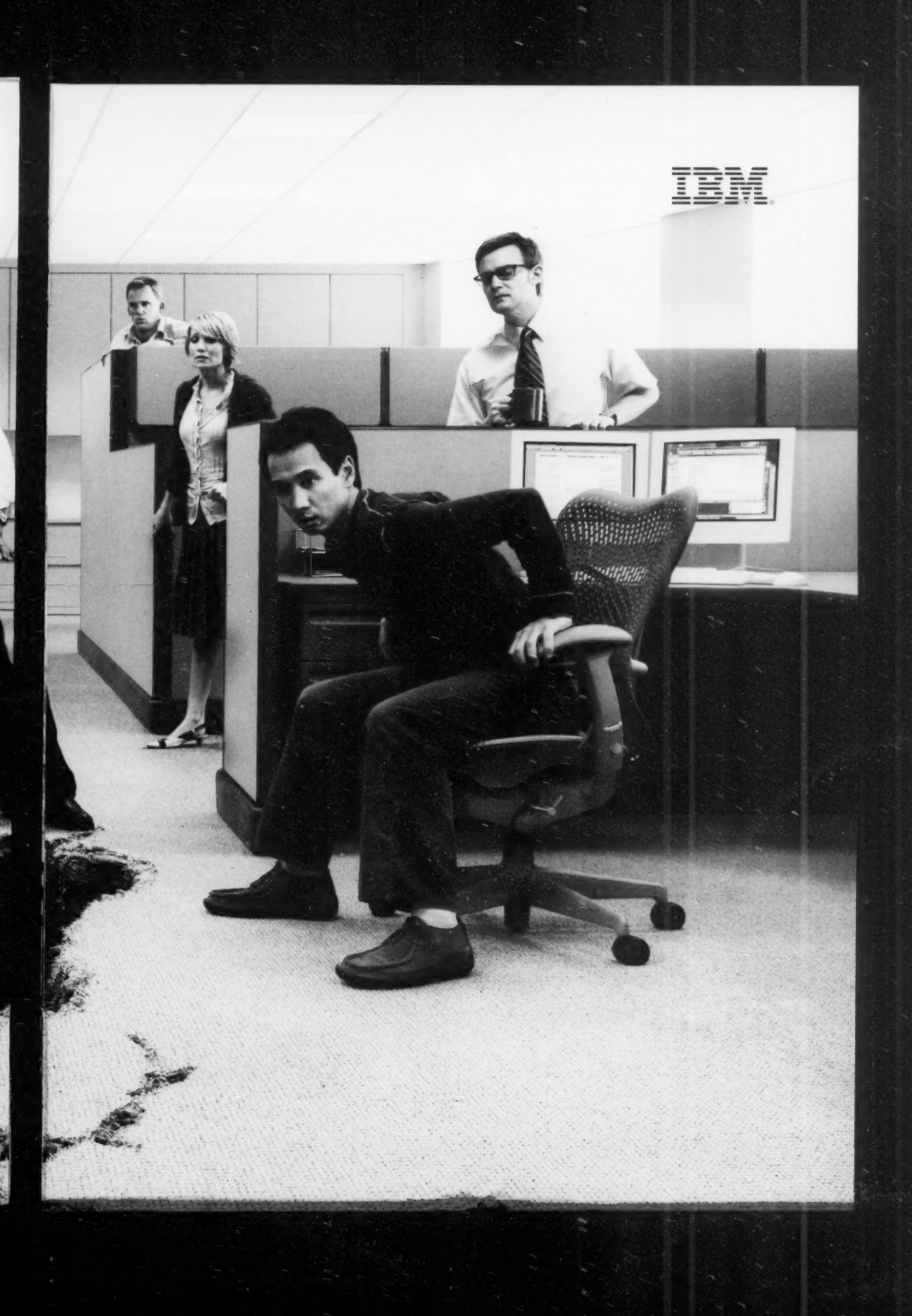


_WEDNESDAY, 2:51 p.m.: This day has gone from bad to scary bad. Now the business is, uh, coming apart. I.T. isn't in sync with the suits. No one's sure what they need to do. It's totally out of control.

_4:57: Gil fell into the crack. Maintenance needed a GPS device and a hundred feet of rope to rescue him.


IBM

_THURSDAY, 11:02 a.m.: I give up. Our infrastructure is so inflexible. Our apps and processes don't work together. We can't respond quickly to change. It's out of control.

_11:42: Gil had an epiphany. Duct tape. A few dozen rolls later and he's integrated everything, and everyone, by hand.

_11:45: Duct tape can fix many things. Basketballs. Sofas. Doorknobs. But not widespread app and process inflexibility.

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_FRIDAY, 9:12 a.m.: I am Ned. I have taken back control with IBM middleware.

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Control untamed information *with IBM Information Management middleware. Built on open standards, it's scalable, modular and seamlessly unites all your critical information, whatever the source. More than that, it gives your information real business value, allowing you to use it in innovative ways to help spur growth.*

Control slumping productivity *with IBM WebSphere Portal, part of the Lotus collaboration family. It's a customizable interface that integrates the apps, processes and info your people need to collaborate and be productive. It works throughout your enterprise and with customers and suppliers. It's also a fast start to a service oriented architecture.*

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Control business paralysis *with IBM WebSphere middleware. It can help make your business more flexible by seamlessly integrating the apps you already have – even those from SAP and Oracle. Now you can change processes in a snap. And with IBM's industry-specific expertise, you can start enabling a service oriented architecture.*

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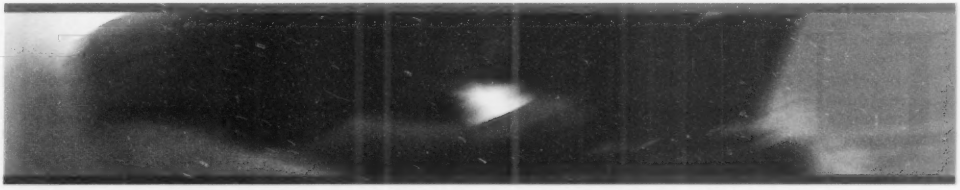

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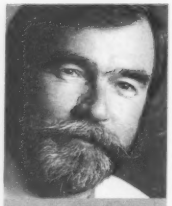
MARK HALL

The End of Unix?

UNIX FANS have been on the ropes of late. SGI declared bankruptcy last week. Last month, ongoing financial problems at Sun Microsystems led to an executive shake-up. It's not surprising to see the two highest-profile Unix-identified vendors in trouble. Things are not looking that bright for Unix anywhere.



MARK HALL is a *Computerworld* editor at large. Contact him at **mark_hall@computerworld.com.**

Although a few folks at Microsoft might think they've had a hand in Sun's and SGI's misfortunes, they'd be wrong. Linux is the culprit. As in some Greek myth, Linux, the unwanted child of Unix, is putting Unix vendors to death.

A look at the Top500 list of supercomputers tells the tale best. In 1998, Unix machines from Sun and SGI combined for 46% of the 500 fastest computers in the world. Linux accounted for one (0.2%). In 2005, Sun had 0.8% — or four systems — and SGI had 3.6%, while 72% of the Top500 ran Linux. IBM saw its prominence rise to the point where its systems represented 44% of that prestigious list in 2005, up from 21% in 1998, all because of its investment in high-end Linux systems.

Linux's success in high-end, scientific and technical computing, like Unix's before it, preceded its success in your data center. Once Linux proved itself by executing the most complex calculations possible, IT managers quickly grasped that it could easily serve Web pages and run payroll. Naturally, it helps to be lucky: Free, downloadable Linux's star began to rise during one of the longest downturns in IT history. With companies doing more with less, one thing they could dump was Unix.

Sort of. Linux, after all, is Unix, but without a closed licensing agreement. Unix, once the byword for "open systems," has become a synonym for "proprietary." Compared with Windows, of course, Unix remains an "open" platform. Compared with Linux, whose source code has been available to everyone from the get-go, Unix looks closed and proprietary.

The problem for Sun and, to a lesser extent, SGI is that for too long, they competed against a brain trust in Redmond, Wash., and not the global brain trust that was creating Linux. Therefore, they weren't prepared for how quickly it undercut their business. Linux has forced both SGI and Sun to adopt a "we do Linux better" strategy. The word *Unix* is never uttered.

IT shops with big Unix operations need not worry. Linux, as most of you already know, can be complementary to or a fine replacement for Unix. Staff skills translate over immediately. Applications that were written to take advantage of, say, cool Solaris-only facilities will be an issue, but not an unresolvable one. Access to packaged software is far better with Linux than Unix.

I don't intend for this to be an obituary for Sun and SGI. Both companies can come roaring back. This industry has more comeback stories than Hollywood; look at IBM and Apple. But I do think we are seeing the passing of vendor-specific Unix.

Ironically, Sun and SGI have developed and backed many industry standards and used a lot of open-source technologies in their products, creating an intellectual climate among their in-house engineers that has fostered sharing with the software community. And if you look to see who's contributing code to various open-source projects, you'll find many programmers who work at SGI, Sun, IBM, Hewlett-Packard and others. They may make their living at companies that depend on Unix, but they work to further the goals of open-source, of which the primary beneficiary is Linux, the killer of Unix. Yes, there's something of a Greek myth in this story.

Don Tennant will return next week.

JOHN D. HALAMKA

Fixing E-mail Overload

I RECENTLY TRAVELED to Prague and had complete BlackBerry coverage via Eurotel Praha GSM/GPRS. Even the butcher shop in the medieval town square advertised "We now have Wi-Fi" along with six different kinds of ham.

All of this connectivity comes with a price. Communicating is instantaneous, work is continuous, and delegation is a few clicks away. This means that we are all working harder, but are we working smarter?

We need to rethink our e-mail communication habits before our workdays devolve into a continuous ping-pong of e-mail messages without any time for creativity, thought or judgment. Here are 10 suggestions for returning sanity to e-mail:

JOHN D. HALAMKA is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, CIO of the Harvard Clinical Research Institute and a practicing emergency physician. Contact him at **jhalamka@caregroup.harvard.edu.**

1. E-mail marked with a "high importance" exclamation point must pass the "cry wolf" test. Is the sender a habitual high-importance e-mailer? Are his messages actually important? If less than 50% are, the e-mail loses points.

2. Give points to high-priority people: your boss, your family members and your key customers.

3. Same for high-priority subjects: critical staff issues, health issues and major financial issues.

4. Judge by the "To," "cc" and "bcc" fields. If you are the only person in the To field, the e-mail gets points. If you are in the To field with a dozen other people, it's neutral. If you are only cc'd, it loses points. A bcc should lose a lot of points in order to keep folks from the reprehensible practice of using blind copies as a political maneuver. Similarly, an e-mail from a co-worker who cc's your boss should lose points. E-mail should not be used as a weapon.

5. E-mail with emotional words, capital letters or anything less than

civil language should be penalized.

6. E-mail threads that go back and forth more than three times should be downgraded. So should e-mail messages longer than five BlackBerry screens.

7. E-mail responses that say only "Thanks," "OK" or "Have a nice day" are social pleasantries but should be moved to the bottom of the queue.

8. Messages with colorful backgrounds, embedded graphics or mixed font sizes lose points.

9. Companies that send bulk e-mail should be forced to pay before an e-mail gateway delivers their mail. How many newsletters have you opted-in for? A micropayment fee system would keep companies honest about their opt-in and unsubscribe policies.

10. Spam filters need to be more effective. Although they are very good at removing clearly labeled ads for Viagra or mortgages, they aren't effective against ads for V1@G RA or mortgage offers embedded in graphic files that are readable by humans but not computers. The more we tune our spam filters to eliminate offensive content, the greater the likelihood that we will miss real mail. Thus, EarthLink's approach of requiring first-time senders to be added to an approved buddy list may be the defense with the highest sensitivity (block the bad stuff) and specificity (don't block the good stuff).

If we implemented such a system, and senders realized that their e-mail had to be truly relevant to get read, folks might think twice before pressing "Send." With e-mail reserved for truly significant issues, it will be routed more seamlessly. The less important matters can wait until the next staff meeting. With some enforced discipline, we may be able to learn how to communicate more effectively and get back to our creative work.

THORNTON A. MAY

Is Your IT Talent at Risk?

SCHOLARS OF business strategy tell us that technology, while a necessary component of an information-enabled competitive advantage, is insufficient in itself. The mind-numbingly obvious observation that everyone and anyone can buy the same technology — and that competitive advantage arises not from technology ownership but from technology use — has nevertheless gone unremarked all too frequently and has been acted upon even less often.

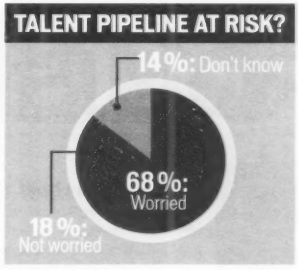
Fortunately, it has finally penetrated the collective consciousness of the IT world. We have at last awakened to the fact that the true source of technology-enabled advantage is not the technology we buy, but the great technologists who guide our organizations in technology use. These are the unsung heroes who tell us what is possible, help us decide what to do and when to do it, and show us how to do great and glorious things with the technology at our disposal. The key ingredient of strategic success thus is not silicon-based (the machine) but carbon-based (the human).

Data collected from around the world by the CIO Posse (a group of CIOs emeritus) indicates that an IT shop is only as good as the people working in it.

Quality IT people are at risk at many firms — from being overworked, underloved and poorly managed. Executives with an eye on the future are worried about how solid, secure and sustainable their talent pipelines are.

Researchers at the IT Leadership Academy at Florida Community College in Jacksonville asked 250 executives about the state of their talent pipelines. Here are their responses:

THORNTON A. MAY is a longtime industry observer, management consultant and commentator. Contact him at **thorntonamay@aol.com.**



We then asked the worriers what they were worried about. Topping their lists is the concern that since the tech economy is heating up and organizations are starting to hire, top-of-the-pile performers have career choices again. In fact, 90% of those saying they are worried cited instances where high performers were cherry-picked.

What is fascinating is who is doing the cherry-picking, as revealed in a comment by a C-level executive at a Fortune 50 distributor. Asked what concerned him about the looming talent war, he responded, "It is already here. IT is losing some of the best and brightest to the business and to the vendor side." Even CIOs in the federal sector — where human capital is thought to move at a more leisurely pace — are concerned. "Even within government, I see more and more people job hopping," said one.

We then turned our attention to the executives who said they were not worried. We initially thought, "Are these guys crazy? Don't they know there's a talent war going on?" It turns out, though, that these "not worried" folks are very aware of the imbalance between the supply of world-class technologists and demand. These angst-free executives either are taking steps to prevent strangers from seducing away their A-listers or have already done so. These executives say they have a relationship with every one of their top performers, and in most cases the CIO and his direct reports have stack-ranked every person in the department.

Tom Kasten, formerly the CIO at Levi Strauss and now the mayor of Hillsborough, Calif., summed things up nicely: "In the end, the success of the enterprise is dependent upon the talent. Unleash it, and the organization can probably adapt to change. Keep it bottled up (or, worse, don't bring it in), and you'll eventually go the way of the buggy-whip manufacturers."

If IT leaders don't clean up their acts and their work environments, their top employees may vote with their feet.

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READERS' LETTERS

We Are Left With No More Secrets

IN YOUR story "Counties Post Personal Data in Documents" [April 17], the director of the Broward County Records Division, Sue Baldwin, says, "People have to assume some responsibility" and get sensitive information about themselves deleted from documents posted online. What about young children? It is information about them online that causes the highest risk. And what about persons who live far away from the county, persons who are not even aware that personal information about themselves has found its way into some court document?

In fact, it's the custodian of the records who has the primary responsibility to protect sensitive information and to keep it off the Internet in the first place, even if it requires getting changes in state legislation.

Robert Ellis Smith
Publisher, Privacy Journal, *Providence, R.I., orders@privacyjournal.net*

EIGHT YEARS ago, my completely computer-illiterate better half went online in search of an old friend, with only the skimpiest of information (a last name and potential city of residence). Within hours, she had a detailed history of a friend she'd had no contact with in 35 years – real estate transactions recording addresses, Social Security number, a driver's license with date of birth, former residence, maiden name, birth announcements with children's names. A subsequent search produced real estate transactions in another state, giving another treasure trove of information.

From my years in Air Force intelligence, I know that individual pieces of information rarely mean much; it's the connections and the bigger picture that count. In the article, BJ Ostergren, keeper of The Virginia Watchdog privacy Web site, says, "This online records mess has been the best-kept secret. Ninety-nine percent of citizens haven't a clue that the records are online in the first place." This is *not* a secret. The information is out there, and you'd be surprised how many people take advantage of "Dumpster diving" in the records. Security through obscurity just does not work!

Rick Pierides
Computer security instructor and information security consultant, Forgotten (K)not, Seattle, fk.infosec@gmail.com

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KNOWLEDGE CENTER
MOBILE & WIRELESS

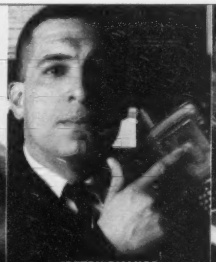
White-Collar Road Warriors
Tech-savvy users like lawyer Tracy Scott Johnson want the latest, lightest gadgets — and seamless IT support. PAGE 22

Blue-Collar Workers
Users like New York City Deputy Police Chief Joseph D'Amico need rugged equipment in the field, yet IT must balance durability with cost. PAGE 34

Opinion: Real Magic
Your end users expect real-time data anywhere they happen to be. It's your job to make that magic happen, says columnist Mark Hall. PAGE 50

TRACY SCOTT JOHNSON
Attorney, Calfee, Halter & Griswold LLP

LEO FIELDS
Director of network services, Crowley Maritime Corp.



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Deputy chief, New York City Police Department

RITA MACE WALSTON
General manager, Telework Consortium

HEATHER KANEER
Coordinator of housing administration, Ohio State University

BRENDA BAYLISS
Call center agent, Alpine Access Inc.

The Faces of Mobile IT

Road warriors, blue-collar workers and telecommuters need different devices — and raise different support issues.

SPECIAL REPORT

EDITOR'S NOTE

EVERY HELP DESK WORKER has had this nightmare call: High-powered, egotistical executive (or lawyer or salesman) is furious that his laptop or wireless gadget won't work. Expletives fly. He needs the information — now! — to close a multimillion-dollar deal. If the deal falls through and the company doesn't hit its quarterly numbers, it's all IT's fault, he sputters.

Sigh. How did we get to this point? Obviously, corporate America has become addicted to mobile connectivity, and the better service it gets, the more it expects. But feeding this addiction isn't easy for the IT department. In *Computerworld*'s survey of 190 IT professionals, 59% said supporting mobile employees is more expensive than supporting desktop users. And by far the most difficult people to support are — you guessed it — white-collar road warriors such as executives and salespeople.

But there are other mobile or remote employees who need IT support too: blue-collar workers, telecommuters, call center agents and the wireless nomads who, while traveling from room to room and building to building, expect to remain connected to the corporate network the whole time. In the following pages, you'll hear their stories (including their wish lists), as well as the stories of the IT people who support them.

Our survey found that end users' No. 1 complaint about mobile devices is the challenge of "getting and staying connected." As columnist Mark Hall explains on page 50, end users expect real-time data anywhere they happen to be, and it's your job to make that happen.

Mitch Betts is executive editor at Computerworld. *He can be reached at mitch_betts@computerworld.com.*

White-Collar Road Warrio

These tech-savvy users want the latest, most efficient gadgets — and seamless IT support. **By Mary Brandel**

IF YOU DON'T spend a lot of time in hockey arenas, you might not know that a number of them have Wi-Fi hot spots. But to Tracy Scott Johnson, father of three hockey players and a partner at Ohio-based law firm Calfee, Halter & Griswold LLP, this is not just a well-known fact — it's a crucial one.

Armed with his BlackBerry 7000 and his wireless laptop, Johnson can travel to his sons' many tournaments knowing that he has everything he requires to respond to client needs — whether it's an e-mail reply, a document review or even a court filing.

"It's very much expected in my realm that clients have instant access to their attorneys, even when they're on vacation, to get an issue dealt with immediately," says Johnson, who works in the intellectual property litigation office at Calfee, one of the largest law firms in Ohio. "The days of clients waiting 24 hours for a turnaround on a problem are gone. They want a response within five minutes if possible, and maybe they'll accept a half-hour."

While recently on vacation in Madison, Wis., Johnson was even able to revise and file a PDF version of a document in a Chicago federal court's electronic filing system.

But Johnson's road warrior status doesn't come without a solid support structure behind it. Two and a half years ago, Calfee's IT department began an initiative to allow the firm's lawyers and paralegals to work as effectively on the road as they could in the office. That entailed thinking of all the different ways the lawyers needed to connect back to the office, whether they were carrying a cell phone, some sort of e-mail device, a laptop or all three.

> The more you leverage the technology, the more you rely on it and the more critical it is.
>
> DAN SZIDON,

Today, all of Calfee's lawyers are equipped with standardized IBM Lenovo ThinkPad T42s, and most carry BlackBerry 7000s. Web-based remote access tools enable them to use office applications such as e-mail, billing and document management systems from any PC. With a system from Adomo Inc. in Cupertino, Calif., they can access e-mail, calendars and contacts with a phone call. And via a network appliance from Array Networks Inc. in Milpitas, Calif., the lawyers can get a wireless or hard-wired broadband Internet connection to the firm's network from their laptops so they can natively run applications and access the firm's repository of 2 million documents no matter where they are.

"Whether through a DSL connection in my hotel room or from a wireless hot spot, I can connect into the firm's network just as though I was sitting at my desk," Johnson says.

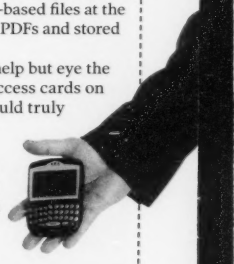
It's that type of well-planned, robust architecture that's required to support white-collar road warriors today. "Any one of these tools on their own won't fully support the strategy," says Gary Osborne, director of IT at Calfee. And there's the behind-the-scenes work, such as maintaining the BlackBerry server, updating the software on the mobile devices and tending to hardware and software support issues.

A Self-perpetuating System

Mobile architectures are not set-it-up-and-forget-it systems. The more you equip executives to be mobile, the more they will grow to depend on this mode of work and the more functionality they will expect. The devices they want to use might look streamlined, but supporting them is anything but.

"The more you leverage the technology, the more you rely on it and the more critical it is," agrees Dan Szidon, an audit partner at Wipfli LLP, an accounting and business consulting firm in Appleton, Wis. Szidon more often than not works at client sites, armed with a "kit" consisting of a scanner, printer, wireless router, Dell laptop and Microsoft Mobile smart phone (see "Lightening the Load," page 24).

Indeed, even with everything Calfee has in place, Johnson can name some improvements he'd like to make to his mobile arsenal. He'd like a combination tablet PC/laptop for recording notes, and he'd like all paper-based files at the firm to be turned into PDFs and stored electronically.



Johnson also can't help but eye the wireless broadband access cards on the market, which would truly enable him to access the office network from anywhere, even without a hard-wired connection or a Wi-Fi hot spot.

IT managers have high expectations too. For example, Osborne is looking at extending the BlackBerry to enable lawyers to access Calfee's time and billing system from the device, as well as adding spell-check and print capabilities.

Offering sophisticated mobile tools

"The days of clients waiting 24 hours for a turnaround on a problem are gone," says TRACY SCOTT JOHNSON, a partner at Ohio-based law firm Calfee, Halter & Griswold.

STEVEN VOTE

Tethered to Treo

HOW'S THIS FOR IRONY: The reason Chris Nimsky has become so attached to his Palm Treo smart phone is that his company encourages face-to-face communications. "We try to emphasize that if you have something to talk about with someone, go to them instead of peppering them with e-mails all day," says Nimsky, who is senior property director at Edmunds.com, an online source for automotive information.

But between visiting people at their desks and attending meetings, Nimsky is away from his desk for hours at a time. So if he didn't have an e-mail device with him at all times, he'd miss a lot of messages.

Nimsky recently upgraded from the Treo 600 to the Windows Mobile Treo smart phone from Verizon Wireless. The new version lets him separate his personal e-mail and calendaring functions from his work functions, which he couldn't do on the old Treo. That meant carrying two devices. "How many things do you want in your pocket at one time?" he says.

On Nimsky's wish list is an integrated Wi-Fi card on his Treo. "I'd never buy one, because they're the size of a postage stamp and I'd lose it," he says. But if it were part of the device, it would kick into Wi-Fi mode when there was no cell coverage. And that would mean he wouldn't have to take his Wi-Fi-enabled laptop with him to continue getting e-mail on his next Colorado ski vacation.

– MARY BRANDEL

is also fast becoming a prime way to attract the best employees in the job market. "The people we hire are college graduates predominantly, and to not have that type of environment puts you at a disadvantage," Szidon says. "It puts us on a higher scale."

There's Always Something

Jeff Gallino is another self-described road warrior who recently equipped his sales staff with BlackBerry devices because he couldn't stand the four-to-five-hour wait between sending an e-mail and getting a response.

"I promised myself I'd never have one, and now I'm addicted like everyone else," says Gallino, president of CallMiner Inc., a speech analytics software firm in Fort Myers, Fla. "To maintain the sanctity of my marriage, I turn the ringer off when I'm home and just set it to vibrate."

But as much as he embraces his mobile capabilities, he sees plenty of room for improvement. In addition to a BlackBerry 7100g and a Dell Axim x50v pocket PC, Gallino travels with a 2.5-lb. Toshiba Protégé laptop and an add-on battery. He is satisfied with the weight and the added nine hours of battery life. But to get that, he compromised on the screen and the keyboard, which are both smaller than he would like. Gallino is also critical of the design of available power supplies, which he says are awkward to use and store. "I always feel like I'm damaging the wires when I wrap them up," he says.

Gallino says he loves his Verizon V620 broadband access card, which gives him cellular-based Internet access, no matter where he is, for $80 per month. "That's worth gold to me," he says. "I do two to three hours a week of office work in airports, and I don't want to pay $12 in roaming charges every time I open my laptop."

But as much as he relies on and appreciates his BlackBerry for its always-connected status and its calendar, contact management and push e-mail capabilities, Gallino is decidedly not in love with it. For one thing, although he uses it as a phone, he doesn't like the shape, calling it "the Model T of phones."

He also thinks the device is too large and should be designed with a hinge so you can fold it up when you're not using it. Without that, you have to clip it to your belt, "and then you get to show the whole world what a geek you are," Gallino says. He questions its ruggedness, since its keys are already breaking down after less than a year.

But until there's an affordable device that combines the pocket PC's capabilities with a good phone, contact database, push e-mail and persistent networking, Gallino will continue to use the BlackBerry. "There have been times when I'm literally in an investor meeting and I'm waiting to hear about a sales closure, and then it buzzes and I can see we've got the deal," he says.

Behind the scenes, supporting CallMiner's road warriors has created a

whole new set of responsibilities for Felix Lipa, the company's network administrator. Four months ago, the company decided to install its own BlackBerry server rather than rely on a third-party provider, which meant migrating users one by one. "He worked us through every step of it," Gallino says.

It also meant providing e-mail connectivity from users' laptops as well as their BlackBerry devices and PDAs, supporting a voice-over-IP capability, maintaining the firm's virtual private network and other remote connectivity systems, and tending to laptop hardware and software issues. But the most important thing is to understand the devices you support "like the back of your hand," Lipa says. "You need to be able to guide the users over the phone through various menus and tell them what to look for without having to dig through dozens of pages of documentation." With the multitude and ever-increasing complexity of devices and services available to mobile users, this can be quite a challenge, he adds.

To lend some sanity to the job, the IT department has standardized on the BlackBerry 7100, although employees can choose their own PDAs, about a dozen of which Lipa now supports. He says his job would be a lot easier, though, if mobile device makers would establish more consistency across these devices. Too often, different terminologies are used for the same functionalities, not only across different manufacturers but also across devices by the same manufacturer, he says.

Lightening the Load

IT'S EASY to understand why Wipfli LLP began a major paperless initiative four years ago. As a large accounting and business consulting firm, its work is document-intensive and often performed off-site at client offices. If documents weren't scanned into electronic format, auditors would spend more time physically handling information than working with it.

"If you think about the sheer volume of information we have to touch as auditors and tax preparers, it's frightening," says Dan Szidon, an audit partner at Wipfli. And with auditors working outside the office 70% of the time, "we want people to be as functional in the field as they are in the office."

For Tom Lenz, IT director at Wipfli, that has meant preparing standardized "kits" to enable groups of auditors to effectively work at a customer site for weeks at a time. The kits include a Canon DR-2080c scanner, a Canon i80 printer, a Linksys WRT54G wireless router and one of three models of Dell laptops.

With this equipment, teams can effectively share data via a wireless connection. Members of the auditing team can work on various tasks and then save data back to the team lead's laptop. The team lead also backs up the data either to a USB device or via an Internet connection to Wipfli's own servers.

However, although the kits have been in place for 18 months, there are still support issues. "As easy as wireless networking is now compared to five years ago, it's still not always seamless," Lenz says. The IT group provides upfront training and prewritten scripts to ease the process, but "it's not perfect," he says.

Updating software and managing patches is a smoother process, Lenz says. He uses IPass Inc.'s Endpoint Policy Management system, which enables updates and patches to stream out to laptops when employees connect to the Internet. Large files automatically deploy themselves in stages if the connection doesn't last long enough.

With the previous system, employees had to connect to Wipfli's virtual private network for software updates to occur. "It was a more time-intensive and hands-on process," Lenz says.

Although Lenz has standardized the equipment in the kits, he hasn't enforced a particular model of mobile phone or PDA, although employees are encouraged to get a Windows-based mobile device for remote e-mail access.

A big reason Lenz can't enforce standardization is that no carrier adequately services the wide geographic area in which employees work, particular remote regions of Wisconsin. "It would simplify things a great deal if we could pick one vendor and one device, but there's physically not a provider that meets everyone's needs everywhere," he says.

Lenz has found that he needs to provide support 12 hours per day and have an on-call support staffer in place. "Support calls come in all different times of day," he says.

But Lenz says that it's all worth it. "Associates have more control over their environment when they're out on the road," he says. "Having a mobile device and access to e-mail keeps you in the loop and allows you to contribute to whatever is going on."

– MARY BRANDEL

Less Than Perfect

Dealing with mobility's trade-offs and road warriors' desire for continual improvement has often led Justin Hectus to think about Voltaire's famous quote: "The perfect is the enemy of the good." In other words, "if you wait for the perfect mobile device, you'll never get started," says Hectus, director of information at Keesal, Young & Logan, a Long Beach, Calif.-based law firm with offices in Seattle, Hong Kong and Anchorage, Alaska.

Hectus supports 80 lawyers carrying five different mobile devices: the Palm Treo 600, 650 and 700; the Motorola Q smart phone; and the Good Technology GoodLink T100 data-only device. He has overlaid the devices with GoodLink software, which provides a rapid application development framework, simplifies remote management and gives all the devices a standard user interface.

Hectus has developed a time-capture application for billing, as well as the ability to file expense reports, access directions and check weather and flight times.

Where he sees weaknesses with mobile devices available today is mainly with the phone. "People want something less bulky that won't drop a call when they're getting e-mail," he says. In fact, a significant number of Keesal, Young employees would be happy carrying a solid e-mail-only device and a small flip phone rather than a converged device, says Hectus.

That's what Glen Piper, an associate lawyer at the firm, does. He's happy with the reliability of his GoodLink T100 device, except for the fact that it isn't able to open fax attachments. "I have to send it to my secretary and have her read it to me," he says.

Hectus would also like to see a better way of updating software on the various devices he supports. Manufacturers release patches for the devices at least every six months, explains Chris Almaraz, systems support coordinator at Keesal, Young. That requires him to download the update and spend 20 minutes installing it on each device at the user's convenience. He wishes manufacturers would send software updates via e-mail that he could then push out to the devices, or even enable the patches to be put on cards that could be inserted into the devices.

Mobile capabilities have become so ubiquitous that their cost can sometimes go unquestioned. "All it takes is one dire situation to pay for the entire program," Osborne says. "If a client misses a filing or a deal doesn't close, it could cost them millions of dollars." At Calfee, the lawyers' ThinkPads come out of the IT budget. The attorneys pay for their own e-mail or phone devices but can be reimbursed for monthly data service charges.

"We realize we can't put a price tag on client service," says Hectus, whose firm foots the bill for the lawyers' devices. "It's well worth the cost to keep the professionals in touch."

But there's no mistaking that purchasing mobile devices — in addition to supporting them — is expensive. And the benefits are difficult to put in dollar terms, adds Tom Lenz, IT director at Wipfli. "We support 600 to 700 of these devices at $300 to $500 each, plus $30 to $50 a month to keep active and online," he says. "So you've got very well-defined costs, but the benefits are very ill defined, which makes it difficult to justify to senior management."

Wipfli puts some of the cost burden on employees themselves, who pay for half of the cost of the devices but can expense the data and cell phone service portion of their monthly bills.

Even with the costs, support burdens and imperfections, there's no doubt that road warriors will grow more sophisticated. "In five years, we'll carry a device that deals with the network in our pockets, and we'll just carry a display that's lightweight and expandable," Gallino predicts. "We'll be always on and always connected."

Brandel is a Computerworld *contributing writer. Contact her at marybrandel@verizon.net.*

You Know You're a Road Warrior When . . .

- You know which sporting arenas have Wi-Fi hot spots.
- You're frustrated because your Palm Treo offers only patchy coverage on your Colorado ski vacation.
- You never have to hook up to the hotel's broadband Internet connection because your laptop has its own built-in broadband access card.
- You're frustrated that the scroll wheel on your BlackBerry is on the right-hand side because you can't shift gears in your car and dial a contact at the same time.
- The latest book you read was on a PDA.

– MARY BRANDEL

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Globe-Trotters

Perplexing wireless protocols and the prospect of device theft make world travelers tricky to support.

By Steve Ulfelder

IN THE PAST FEW YEARS, taking wireless devices outside the U.S. has become commonplace — but hardly seamless. Mobile phones, of course, routinely globe-trot with their owners. However, few companies appear to have addressed the unusual support needs of end users traveling overseas. The state of international support for notebook computers and key business applications is a take-what-you-can-get shoulder shrug.

But that can't last. Research firm IDC foresees 878 million remote workers worldwide by 2010, and an increasing number of them will have sophisticated support needs.

"The execs just know that if their phone works, they should be able to get e-mail. The rest is up to us," says Leo Fields, director of network services at Crowley Maritime Corp. in Jacksonville, Fla. The shipping company's sales staff and senior executives frequently travel to ports in Russia, Korea, Western Europe and particularly Central and South America. Fields says Crowley's mobile devices of choice are smart phones — his group supports more than 100 users of Palm Treo 600s and 650s.

It's true that the IT group must take the lead on international wireless connectivity; business travelers face enough challenges without fretting about per-megabyte charges in Brussels. Here are some tips from support professionals and analysts on what IT should know about the unique needs of international end users.

PHOTO CREDIT HERE

LEO FIELDS of Crowley Maritime supports staff who travel to Russia, Korea, Western Europe and Central and South America.

Standards and Security

802.11G. Millions of users' devices still rely on the "b" version of the IEEE's 802.11 Wi-Fi standard. That's OK in the U.S., but in other parts of the world, users may run into compatibility problems. Any user who is planning significant international travel should be upgraded to 802.11g.

> The execs just know that if their phone works, they should be able to get e-mail. The rest is up to us.
>
> LEO FIELDS,

SECURITY. Mind the basics. Before end users leave the office, it's a good idea to review security best practices with them and "make sure they do all the meat-and-potatoes security things," says Farpoint Group analyst and *Computerworld* columnist Craig Mathias. With laptops, he adds, "turn on the firewall, turn off file sharing and [peer-to-peer] wireless. These are the things users will completely forget about until there's trouble."

Also remember that there's a good chance mobile devices will end up lost or stolen. Martin Gutberlet, a Gartner Inc. analyst, says all remote devices

Continued on page 29

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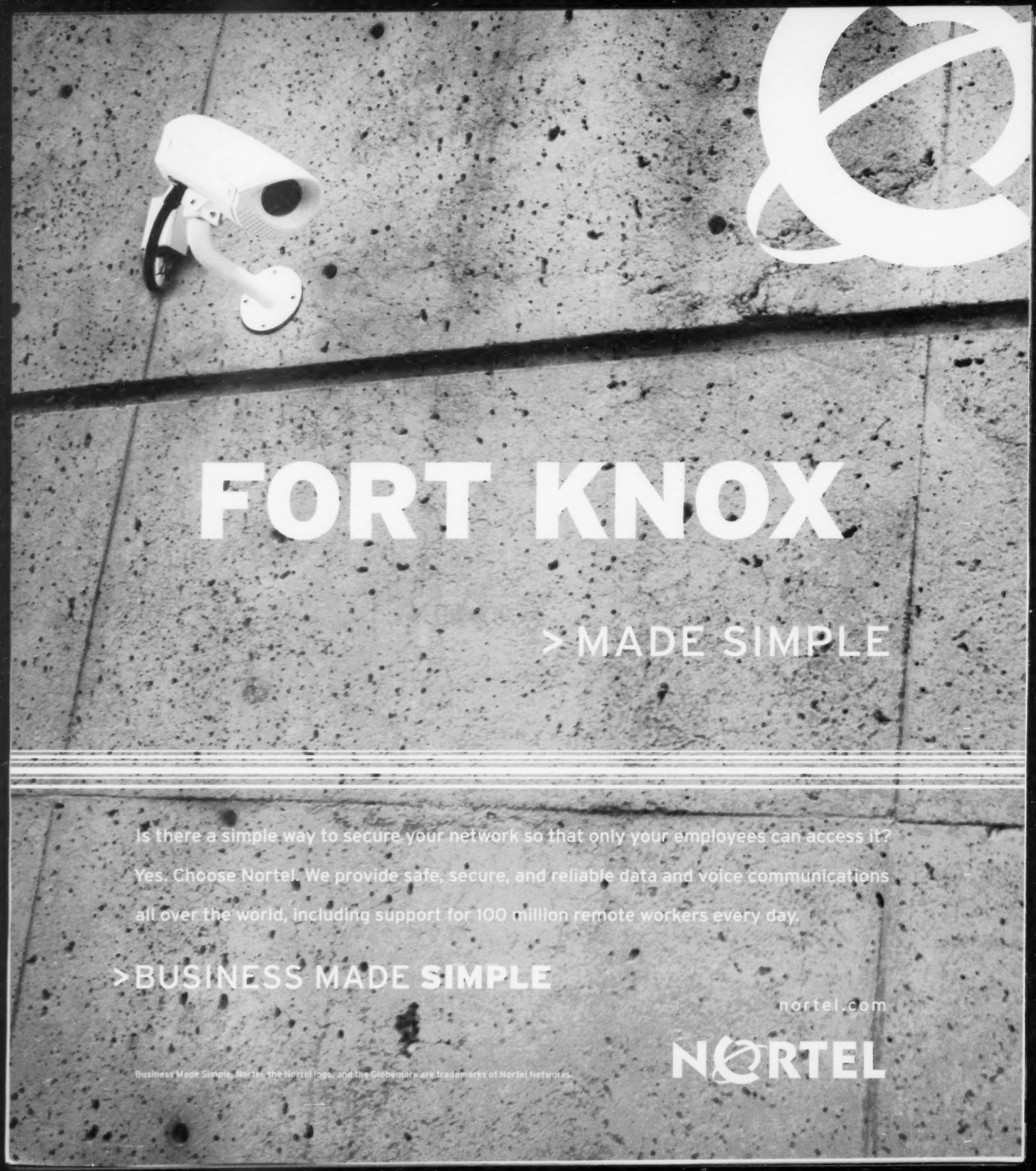
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Continued from page 26

should be password-protected for this reason. "In the U.S., it's common not to have a PIN on your mobile phone," he says. "But this is an invitation to disaster." For the same reason, data on laptops and smart phones should be encrypted.

When the IT group at Crowley Maritime needed e-mail access for the company's 100 users of Palm Treo 600s and 650s, security was a major appeal of Good Technology Inc.'s e-mail access product, GoodLink Enterprise Edition. "The traffic is automatically encrypted, and that was important," Fields says. "And if a device is lost, you can [remotely] disable it and wipe out all the data."

GLOBAL CROSSINGS. For the most part, traveling today with a wireless computing device is painless as far as customs goes. But there are exceptions, and of course you never know when a particular nation will crack down. For example, Mathias says Singapore is a country "that may want to know what's on your hard drive." That means users should make sure their PCs are squeaky-clean when traveling overseas.

One globe-trotter who wishes to remain anonymous says that on a recent domestic flight, he began flipping through his laptop's My Pictures folder. Nestled among the snapshots of his wife and kids was a long-forgotten pornographic picture. The user admits to viewing the image at an adults-only Web site but had no idea how it had been downloaded to My Pictures.

"The shame of it is, I had an aisle seat," the red-faced exec says. "I'll never know if any of the other passengers behind me saw it." Had he been on a flight bound for a country cracking down on pornography, that would have been the least of his worries.

The bottom line is, make sure your end users understand how to clean up their PCs (including their browser caches) and why that's important.

PHONE HOME. From an end user's point of view, cell phone service should be utterly transparent. But that isn't yet the case. For example, "if you have a U.S. subscription for a CDMA phone, it won't work in Europe," Gutberlet says, referring to the Code Division Multiple Access protocol. The elderly CDMA One standard, still common in U.S. cell phones, has been supplanted across the pond by the Global System for Mobile Communications standard, known as GSM, as well as other third-generation (3G) wireless protocols.

Additionally, mobile network frequencies vary from country to country; a cell phone that runs on an 800-MHz network in the U.S. may not work on Europe's 900-MHz networks. This problem has largely been solved because virtually all newer phones come with the ability to run on at least three frequencies, but it's worth checking before end users travel.

WHEN IN ROAM. End users (and accountants) accustomed to generous domestic calling plans receive a shock when traveling abroad. Roaming charges for both voice and data can border on the absurd — people using 3G data cards may pay as much as $18 per megabyte of downloaded data, Gutberlet says. He suggests that end users skirt the expense by seeking out Wi-Fi hot spots. "And if you know where [your company's end users] travel most, it's possible to negotiate a discount with your carrier for, say, your top five locations," Gutberlet adds.

To end-run voice roaming charges (which can reach a couple of dollars per minute — even for incoming calls), Mathias says users may want to buy prepaid phones overseas and simply pay local rates. The inconvenience of the temporary phone number is more than offset by the savings, he says.

Supporting end users wherever they travel is a new frontier for IT groups, but Fields says it's rewarding. "Our users are very happy with their e-mail access," he says. "Of all the IT projects we've done, this was the best received."

> **Make sure they do all the meat-and-potatoes security things. Turn on the firewall, turn off file-sharing. . . . These are the things users will completely forget about until there's trouble.**
>
> CRAIG MATHIAS, FARPOINT GROUP ANALYST AND COMPUTERWORLD COLUMNIST

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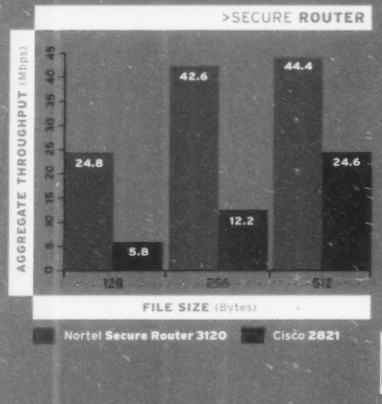

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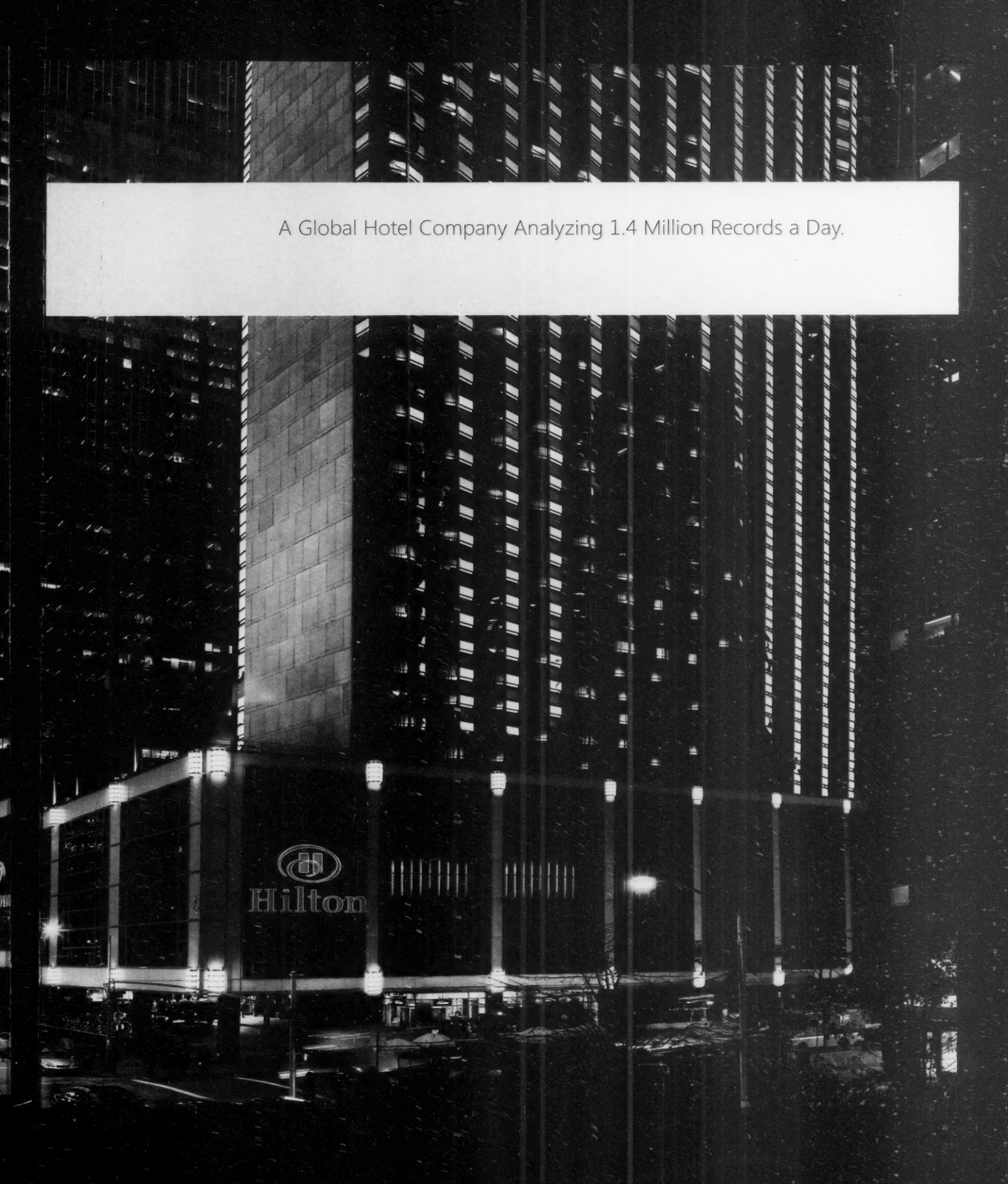
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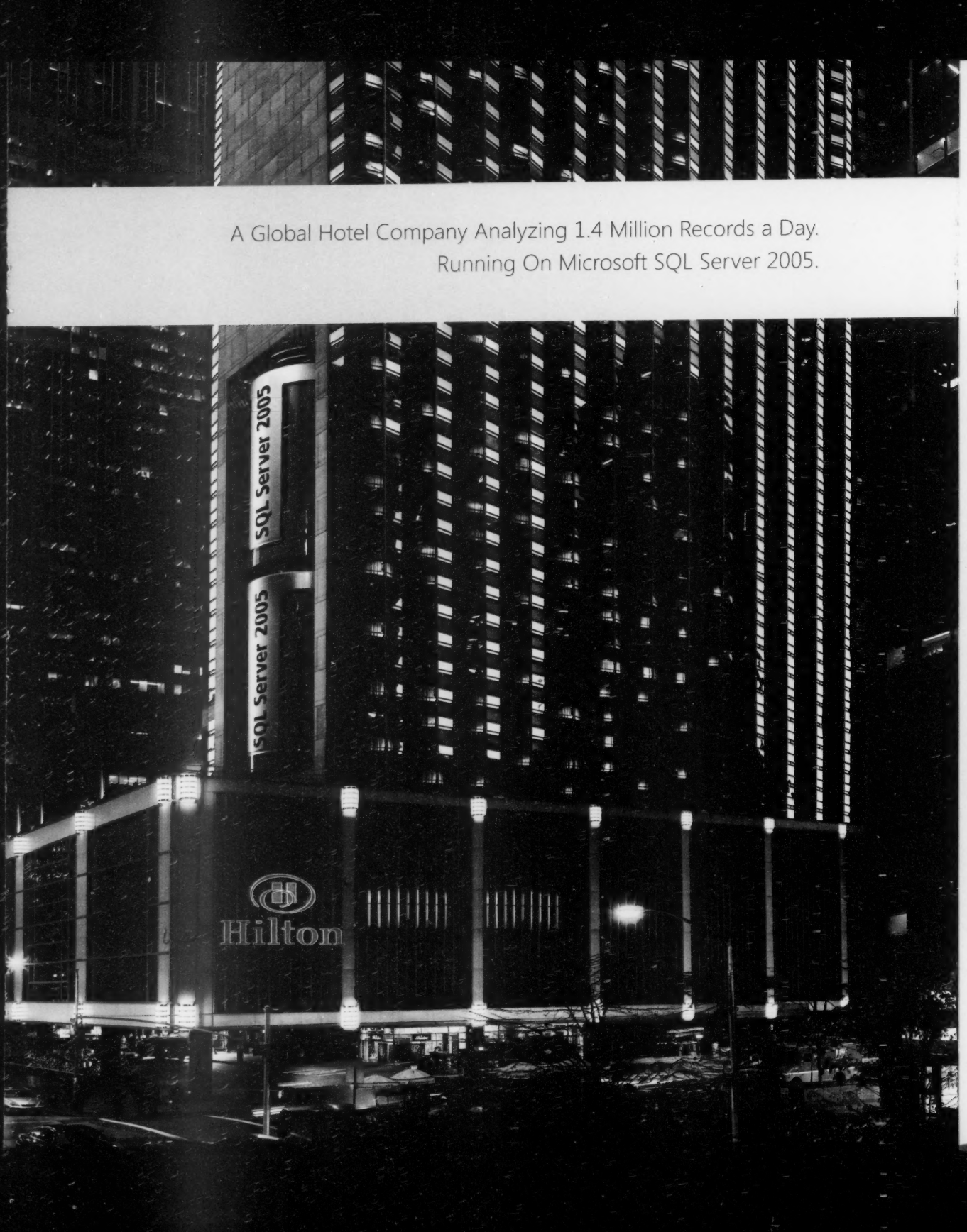
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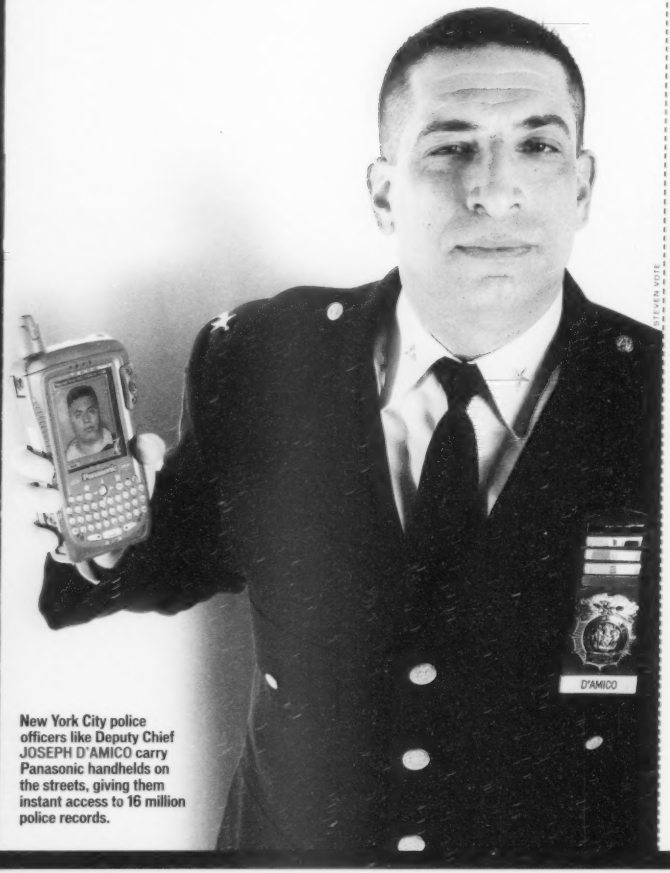


STEVEN VOTE

New York City police officers like Deputy Chief JOSEPH D'AMICO carry Panasonic handhelds on the streets, giving them instant access to 16 million police records.

Blue-Collar Workers

Rugged equipment is crucial in the field, yet IT must balance durability with cost. By Mary K. Pratt

NEW YORK CITY police officers have a new crime-busting tool: Panasonic handhelds.

If you think they're not as effective as the more traditional handgun or billy club, just consider this account: Officers questioning a shooting victim learned that the man was a registered sex offender who was violating parole — information that officers got solely because they had instant access to a photograph sent to their wireless Panasonic handhelds, says Joseph D'Amico, deputy chief of the New York City Police Department.

"This is a major change in how detectives access information," says Jim Onalfo, the department's CIO and a deputy police commissioner.

Although few wireless deployments for field workers offer such dramatic results, technology executives from various industries find that mobile devices significantly improve the productivity and efficiency of their blue-collar and field service employees.

But successful deployments to these workers require special considerations that don't apply to their executive and white-collar counterparts. IT managers should ask, for example, whether field workers need ruggedized hardware, how IT will service equipment that's out on the road and whether employees will even get connectivity in remote work areas.

If those issues are properly handled, researchers say, mobile devices can have significant returns on investment for this class of workers.

"We're seeing the barrier to entry getting lower and lower as the cost of the devices comes down and the robustness of the handheld computing devices goes up. So we're seeing tremendous opportunities for field service workers in multiple industries," says Mark Vigoroso, an analyst at Aberdeen Group Inc. in Boston.

> "Any technology where we can put information in the hands of someone dealing with crime can be instrumental."
>
> JIM ONALFO, CIO AND DEPUTY POLICE COMMISSIONER, NYPD

Onalfo agrees, but at the same time, budget and staff constraints remain challenges to use and adoption at large operations such as the NYPD, he says.

The NYPD has about 53,000 employees; about 37,000 of them are officers, and the rest are civilians. The department also has 16 million master file records. Equipping a staff that size with secure wireless devices that can access high volumes of records comes at a high price — especially because officials say officers need the more expensive ruggedized handhelds for what is at times a very physical job.

Onalfo, who oversees an IT department of 315 that he says is already understaffed, would also incur costs from hiring additional employees to support the wireless initiative.

Despite cost and staffing concerns, Onalfo says the NYPD is moving ahead with its plans to increase the number of laptops and handhelds officers use in the field.

"We have a dire need for wireless technology in the field," he says, noting that mobile technology can offer significant payback in the public safety sector. "Any technology where we can put information in the hands of someone deal-

ing with crime can be instrumental."

Onalfo doesn't have traditional ROI figures for existing or planned initiatives, but Vigoroso cites some impressive findings. In a November 2005 study from Aberdeen Group, the companies surveyed that had mobile field-service systems reported an average improvement in worker productivity of 27%, a 19% improvement in customer satisfaction and retention, a 17% improvement in overall profitability and a 13% improvement in service revenue.

Durable Device

As you might expect, just passing out handhelds won't guarantee such returns. IT executives must not only consider the typical questions that go with any deployment — What training is needed? How do I get worker buy-in? — but they must also ask questions particular to blue-collar jobs and field work.

Consider the environment in which the devices will be used, for example. IT department heads must find a device that has the right technology for the job, is sturdy enough to handle tough conditions and comes at the right price.

"That has been a balancing effort. It's been a collaborative effort here to get the right machine for the job," says Andrew Kasznay, a software engineer who oversees mobile and wireless applications at Northeast Utilities in Berlin, Conn.

Workers need easy-to-use applications and screens that are big enough to see but compact enough to qualify as mobile, Kasznay says. They also need screens that are visible both day and night. And the devices must be able to withstand bumpy rides and extreme temperatures.

"If you take one ride in a line truck, it clarifies to you what the need is for field-hardened machines," Kasznay says.

Meanwhile, the IT staff wants devices that won't break down in the field, and the corporate folks want handheld applications that are compatible with existing back-office systems, he adds.

At Northeast Utilities, each division uses different hardware, depending on its needs, Kasznay says. Moreover, officials have adapted as the company and its workers have become more comfortable with the technology.

Take its environmental division. Environmental coordinators had been using Panasonic Toughbooks, says Rick Pizzella, manager of environmental operations at Northeast Utilities. But the company recently switched from those ruggedized laptops, which cost about $6,500 to $7,000 each fully equipped, to nonruggedized Hewlett-Packard laptops that cost about $2,000 apiece, in part to capitalize on some technological advantages.

"It means [workers] have to be very careful with them. They can't leave them out in their cars overnight during the wintertime. But at less than a third of the cost, I can afford some mistakes and end up spending less than I would have with the Toughbooks," Pizzella says.

Even figuring in the cost of replacement equipment, he says it's clear that the wireless laptops have created efficiencies for his department. For example, environmental coordinators dispatched to sites for cleanups of oil-filled transformers can access information critical to determining what mitigation is needed at each particular site.

Pizzella says he keeps an extra laptop or two handy in case IT needs to test new software or a worker's unit goes down in the field. He also says he has learned that the success of mobile deployments relies on a good rapport with IT. "We're much more closely aligned with our IT department than we were," he says, adding that an IT person is on call at all times to respond to his department's needs.

> **My experience with the workers is if the application does something for them and it's not an ERP system imported to a PDA, they'll adapt to it fast.**
>
> RON FIJALKOWSKI, EXECUTIVE VICE PRESIDENT OF TECHNOLOGY AND CENTRAL SERVICES, STRATEGIC DISTRIBUTION INC.

Multitude of Requirements

But even with such alignment, challenges with mobile deployment remain. Just ask Ron Fijalkowski, executive vice president of technology and central services at Strategic Distribution Inc., a Bristol, Pa.-based company that works with businesses to manage their maintenance, repair and operations supply chains.

SDI started equipping its blue-collar workers with mobile devices in 2003 as its customers pushed for greater efficiencies. In addition to equipping the company's own employees, who work on-site at customer locations, SDI also works with its customers to get their employees to use mobile technology, Fijalkowski says.

"When you get into wireless, you need very thin, light applications. These people aren't going to go through pull-downs to be functional. They want to do what they want to do very rapidly," he says. "And we needed an environment that would be programmable; that was a critical element for us."

On the device side, SDI wanted something "that would have staying power, would grow and would be easy to support and develop under the programmable requirement," Fijalkowski says.

SDI went with ruggedized handhelds from Hand Held Products Inc. and Symbol Technologies Inc. and chose iPaq pocket PCs from Hewlett-Packard Co. for those who wanted nonruggedized hardware. SDI uses middleware from Dexterra Inc. and developed the end-user applications internally using Microsoft Corp.'s .Net technology.

As Fijalkowski has rolled out wireless to more workers and more employees of SDI's customers, he has drawn some important conclusions. One is that for an implementation to be successful, blue-collar workers need devices that can survive tough working conditions; they're less likely to use the new hardware if it breaks easily.

The systems also have to be tailored to the workers. "My experience with the workers is if the application does something for them and it's not an ERP system imported to a PDA, they'll adapt to it fast," Fijalkowski says.

He also warns IT departments to remember details that, if ignored, can trip them up. For example, he points out that since mobile devices have limited battery life, someone needs to manage batteries. IT also needs to emphasize accountability among workers, making it clear that they're getting expensive tools that need to be treated with care.

Fijalkowski also recommends choosing someone to be an on-site superuser so the help desk doesn't get flooded with calls over minor technical snafus. "There has to be some ownership at the site level," he says. "You need ownership at the location, because you're going to be doing this remotely."

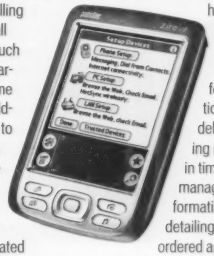
Pratt is a Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

At Home With a Palm

MIKE MELTON IS a Sacramento-based lead construction manager at Kimball Hill Homes. As such, he has used plenty of tools: hammers, drills, wrenches, saws – you name it.

But he recently added another piece of equipment to his toolbox: a **Palm Zire 72**.

Melton says his Palm Inc. handheld eliminates a few hours of paperwork for him and his colleagues every day. It also better organizes his notes and orders, helping to reduce errors and confusion.



Corporate officials at Rolling Meadows, Ill.-based Kimball Hill Inc. are impressed by such reports, says CIO Frank Scaramuzza. Therefore, the home construction company decided to roll out Palm Zire 72s to the construction managers at its 90-plus building locations after running a successful pilot program in Sacramento. Scaramuzza wouldn't disclose the estimated ROI but says it was "sufficient to move forward with the product."

On a typical day, construction managers walk through homes under construction, taking notes on what needs to be done, inspecting completed work, checking jobs in progress and scheduling the contractors, Melton says. In the past, they took notes on paper while walking around and then transferred the information to computers or to paper forms back in their on-site offices.

"Now we have the Palm, and [construction managers have] virtually a phone, a fax, a computer and a printer in every home. They have their schedule right there, they can take notes, they can make changes on the fly, and the messages go right out," Melton says.

The efficiencies created by the handhelds are tangible, Melton says. For example, a construction manager changed a cabinet order for a home under construction, but the vendor failed to deliver the new item, claiming it hadn't gotten the order in time. But the construction manager had all the pertinent information right there in his hand, detailing when the change was ordered and who at the vendor's company verified its receipt.

"In the past, we would have ended up having to buy a whole home's worth of [the wrong] cabinets," Melton says. "But rather than us having to pay for it, we could show we did everything right. The Palm created that accountability."

– MARY K. PRATT

As managing editor at a regional magazine, teleworker RITA MACE WALSTON relied on a wireless connection that utilized fixed-wireless or multipoint multichannel distribution services technology.

CLAIRE MADDEN

Telecommuters

These stay-at-home workers want collaboration with colleagues. IT strives to make it secure. By Jennifer McAdams

EMPOWERED BY ubiquitous broadband availability and increased wireless options, telecommuters just ain't what they used to be. No longer are work-from-home arrangements limited to new mothers or other employees who have extenuating circumstances and need to rotate between the office and kitchen table, depending on the day of the week.

Instead, droves of telecommuters have become teleworkers — employees across professions and market sectors who work full time from home with the blessing of upper management. Feeding the increase in teleworkers is everything from improved collaborative technology to potential real estate savings.

IT must-haves for telecommuters include the obvious — laptops sitting atop docking stations, cordless phones outfitted with voice-over-IP (VoIP) or public-switched telephone network connections, and multifunction equipment, such as devices that blend printing, scanning and copying capabilities. Instant messaging has become almost mandatory, as have stringent security measures, especially in this age of pervasive malware.

While the technology is basic and readily available, corporate mentality has been, and in some cases remains, the biggest barrier to working at home. "Up to now, the only real barrier has been people — making the move from the Industrial Age's 'management by watching you work' or the need to see you in order to judge your performance to the Information Age's 'management by objectives,' " observes Brendan Read, a teleworking and transportation advocate at The Telework Coalition (TelCoa) in Washington.

Indeed, midlevel managers in vertical industries such as financial services, insurance and even government are letting go of the need to watch employees work. "Work should be something you do, not someplace you go," says Rita Mace Walston, general manager at the Telework Consortium, a nonprofit organization in Herndon, Va., established by Congress to address telecommuting issues such as continuity of operations, traffic congestion and work/life balance.

> **With the right set of tools, supporting a remote worker can be as easy as supporting local users.**
>
> RITA MACE WALSTON,

Seeing Is Believing

Mace Walston now advocates teleworking and continues to work from a home office, where she can look out the window and see her 11-year-old son's tree fort. She also lived the reality of telecommuting from 2001 to 2004 when she served as managing editor at *Loudoun Magazine*, a quarterly lifestyle publication dedicated to the growing community around Leesburg, Va. The magazine is produced entirely by a virtual staff.

To attend virtual meetings, Mace Walston used a Duet Conference Speakerphone from Phoenix Audio

Continued on page 38

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Continued from page 36

Technologies Ltd. in Great Neck, N.Y. Another key to the company's success in generating a credible publication after its formal office space was shuttered was the use of collaboration software from Marratech AB, a Stockholm-based company that now works closely with the Telework Consortium to help outfit remote workers.

"We had virtual rooms, and one was called the Watercooler. A magazine is a very creative environment, so we would leave on the whiteboard drawings, comic strips and comments about everything from the weekend's baseball game to what happened on a particular television show. It was a way to build and keep camaraderie," Mace Walston says.

To stay connected, she relied on an 802.11-based wireless WAN with speeds up to 100Mbit/sec. Her wireless connection utilized fixed-wireless or multipoint multichannel distribution services technology. Mace Walston also argues that telecommuters need audio and whiteboard software and video connections with speeds of 512Kbit/sec. or higher. Cameras, headsets and collaboration tools also make working from home easier, she says.

For Mace Walston, security has certainly been an issue for both her past and present employers. To attain adequate protection, she uses a firewall and the security that's built into the collaboration software she uses. "Although many collaboration tools have built-in security, the user can also use a VPN connection for additional security," she adds.

> **Regardless of who owns the computer, you can dictate home network security. . . . If you require it at an office, it should be required at home.**
>
> BRENDAN READ, TELCOA'S CHIEF ANALYST AND SPOKESMAN ADVOCATE FOR TELEWORKERS

At *Loudoun Magazine*, Mace Walston relied on a part-time staffer who was tasked with making sure telecommuters weren't at a standstill. The publication also received technology and support through an agreement to be a pilot site for many Telework Consortium initiatives.

Mace Walston says she managed to stay afloat without taking up too much of the support staff's time. "With the right set of tools, supporting a remote worker can be as easy as supporting local users. What is needed is the ability for the IT person to remotely connect to the user's computer and to be able to troubleshoot from the remote end," she says.

Of the problems she encountered, "many of the issues centered on ensuring quality of service of the connectivity," says Mace Walston. "With distributed workers, having remote diagnostic tools is a key to efficient support. The biggest technical support problems with telecommuters in general are issues around bandwidth and proper use of cameras and audio equipment."

Tools of the Trade

Realizing that working from home can keep employees happy, other organizations are leaning on VoIP and call-tracking software both to deploy and manage tasks assigned to remote workers.

Ridgewood Corp. in Harriman, N.Y., uses an IP telephony network from ShoreTel Inc. in Sunnyvale, Calif. Particularly useful is the ShoreTel system's call-tracking system, says Maritza Strauss, Ridgewood's vice president of computer operations. "It has gathered much-needed information as to which of our remote locations are swamped with calls and which are not," she says.

Members of Ridgewood's sales force and many other remote employees access the company's VoIP system via virtual private network, a common facet of most telecommuting setups, according to TelCoa's Read, who urges companies to insist on specific security arrangements.

"Regardless of who owns the computer, you can dictate home network security by requiring high-security wireless hubs, prohibiting nonemployee access to the home office and requiring locks on doors, padlocked files and locking computers as a condition of employment," Read says. "If you require it at an office, it should be required at home."

Whether employees use equipment supplied and controlled by the company or outfit their own home offices, it's wise to spell out the details upfront. With that accomplished, both teleworkers and their employers stand to gain a lot through telecommuting arrangements, says Bill Mularie, CEO of the Telework Consortium.

"We've certainly learned that we can't always converge in one place at one time," says Mularie. "That's a lesson I really learned after talking to a CTO at a financial institution in New York that had once taken up 23 floors in the World Trade Center. Before, this company's motto was 'Quick recovery.' Now it's 'Business as usual.' " Telecommuting is an important part of making that motto a reality, he adds.

McAdams is a freelance writer in Vienna, Va. Contact her at jjwriterva@aol.com.

Close Contact with IP Communicator

TELEWORK OUTPOSTS don't get much more romantic than a home office in Paris, where technology strategist Charlie Killian headed last year with the full blessing of his employer, D.W. Morgan Co. in Pleasanton, Calif.

"A dedicated IT department and technology make it easy to telecommute," says Killian, who is plugged into corporate operations through a VPN client from Cisco Systems Inc. Killian's work space also folds in Cisco's IP communicator and instant messaging capabilities using Connecticut-based Cerulean Studios' Trillian chat client.

Killian heavily attributes his ability to stay in close contact with colleagues and clients – and take the occasional stroll past Notre Dame – to the use of IP Communicator. "It allows me to easily communicate with everyone in the office with four-digit dialing just like I was sitting next to them. It also allows our clients to stay in contact by dialing the same seven-digit California number as always," he says.

As with all remote staff, D.W. Morgan is concerned with more than technology that lets employees such as Killian work seamlessly with clients. Tight security is definitely required for telecommuters at this provider of supply chain and other consulting services to major companies, including Johnson & Johnson, Chevron Texaco and Cisco.

"When providing access to sensitive local information, it is always prudent to do so over encrypted channels," advises network engineer Binh Ly. "At Morgan, remote access to internal systems is achieved over security protocols," he adds, specifically mentioning Secure Shell, Secure Sockets Layer and IPsec.

– JENNIFER McADAMS

Snapshots

High Maintenance

Which type of mobile user do you find most difficult to support technically?*

White-collar road warriors	56%
Globe-trotters	14%
Telecommuters	13%
Campus nomads	11%
Blue-collar workers	6%
Call center agents	1%
Other	9%

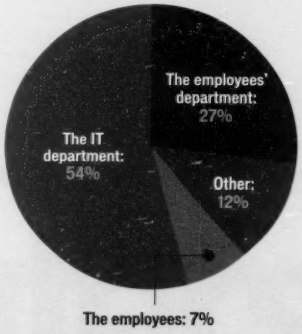
Low Maintenance

Which type of mobile user do you find easiest to support technically?*

Telecommuters	28%
Campus nomads	25%
White-collar road warriors	22%
Blue-collar workers	14%
Globe-trotters	5%
Call center agents	5%
Other	7%

IT in Control

Who bought the mobile devices your company's employees use?



BASE: 190 IT professionals
* Indicates respondents could choose all that apply.

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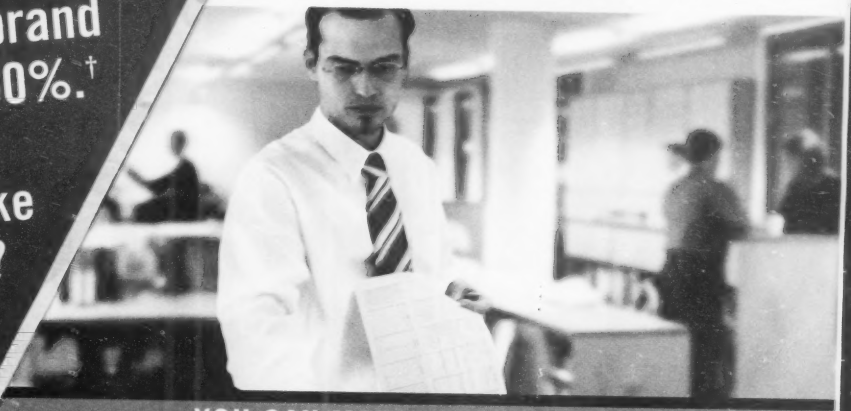

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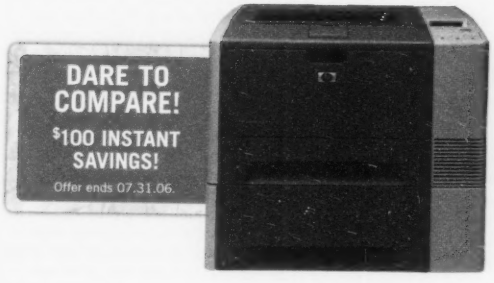

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hp invent

Equipped with a pager, cell phone and PDA, HEATHER KANEER, coordinator of housing administration at Ohio State University, stays tightly connected to residence hall directors and central office staff.

STEVEN NOTE

Campus Nomads

These corridor-roamers want high connectivity paired with low-tech devices. By Stacy Collett

ON ANY given day, Heather Kaneer totes an extra pound on her waistband as she travels between residence buildings on the sprawling 1,700-acre Ohio State University campus. The cafeteria meals aren't to blame — it's the pager, cell phone and handheld device clipped to her belt. As OSU's coordinator of housing administration, Kaneer must keep in constant contact with residence hall directors and central office staff.

She admits that the Handspring Visor Platinum handheld that she purchased in 2001 is "a dinosaur." She uses its calendar feature only because it syncs up easily with her Microsoft Outlook desktop software. She purchased the cell phone herself after the phones issued to employees by the university came under scrutiny for the amount of personal use, even though users claimed their personal calls and paid for them. "It became so ridiculous," she recalls. Now, however, "half of what I use my personal cell phone for is work," she adds.

Kaneer's mobile technology habits are typical of many administrators and professors at the university. "Our field is deliberately low tech because we value the one-to-one interaction," she explains. Some staff members even carry around desk-size paper calendars to keep schedules and arrange meetings with students who don't have handhelds.

Michael Hiatt, associate director of information systems at OSU, must keep these cultural norms in mind as he moves toward standardizing the university's student affairs operation on a single, multiuse mobile device.

He's not alone. IT teams constantly struggle to meet the vast mobile computing needs of campus nomads — from Palm power users to the hopelessly paper-dependent — in an effort to standardize systems and keep operating costs low.

High Tech for Low-Tech Culture

Since last August, Hiatt's IT staff at Ohio State has been testing BlackBerry 7520 models as well as a few newer versions — all with Nextel connectivity — and Palm Treo 700w smart phones with Windows Mobile 5.0 software. No clear winner has emerged so far.

Hiatt likes BlackBerry's walkie-talkie feature, which could help maintenance and housekeeping staffers manage service requests at the university's 21 main campus residence halls. When his team began the BlackBerry pilot, it installed a dedicated server. Just 1% of the student affairs employees use the technology purchased by OSU right now.

The Treo model being tested doesn't have two-way radio capability, but Hiatt anticipates that newer models available this spring will add the feature.

The Palm Treo has simplicity on its side. It connects directly with the university's mail server. "Being able to cut another box out of the mix is important to us," Hiatt says. What's more, the familiar look and feel of Windows software appeals to the low-tech crowd. "Anything that looks like what they already know would be good. Otherwise, they just won't use it," Kaneer adds.

A lone tester is evaluating the Treo,

Continued on page 42

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Continued from page 40

but nonusers who see Hiatt's demo can pick up the device and easily navigate the system. "It has less moving parts. That's what we're driving toward. And the [stylus] interface is a cut above," Hiatt says.

He says he hasn't compared costs for the devices yet but estimates that they come out even when infrastructure needs and licensing for 100 to 200 devices are considered. A BlackBerry 7520 costs about $200 with a two-year service agreement, plus server costs and maintenance. The Treo 700w costs between $400 and $500 with a two-year service agreement, but no extra server is required.

Hiatt says he expects to make a final decision this summer, but if newer versions don't materialize with some of the expected features, "we could end up using two standards for a short time." And when it comes to private vs. business phone calls on either device, Hiatt says, the university's pay-for-private-calls policy isn't likely to change.

> [Any mobile device] that looks like what they already know would be good. Otherwise, they just won't use it.
>
> HEATHER KANEER,

NetPagers, Stat

Contrary to what all those hospital warning signs might have visitors believe, "patients don't flat-line because somebody uses their cell phone" inside the hospital, says Daryl Crowley, director of information services at Memorial Medical Center of West Michigan in Ludington. But any mobile device that rings can distract physicians and nurses from their work. What's more, some doctors who are considered leading-edge in medicine are behind the curve when it comes to technology. Faced with new mobile devices, they often hand them off to tech teams or assistants with instructions to "make it work."

Crowley's team has found a setup that works for the doctors and staff at Memorial Medical Center: Motorola Inc.'s PageWriter 2000 and Sun Telecom Inc.'s Titan III intranet-based alpha pagers with connectivity from Arch Wireless Operating Co. Along with some customized software developed in-house with the help of a local developer, the NetPager system allows nurses to send detailed messages to doctors and departments, eliminating the call-back process and saving time, steps and maybe even lives.

Previously, nurses phoned the operator, who would then page a doctor. Or a staff member would look up the number and then dial 1, 9 and 616, followed by the pager number. When the connection was made, they entered a code number that indicated whether the page was urgent or routine. "It's a pretty lengthy process, especially if you need someone critically," says Cathy Giles, a registered nurse and NetPager power user.

With the NetPager system, a physician's contact information is available from any PC in the hospital. A nurse can click on the name of the person to page, type in a message such as "come to the critical care unit STAT," and click the Send button.

The critical care unit and emergency room have taken NetPager a step further by compiling groups of users who usually receive the same messages, says Giles, who adds that no patient information is transmitted via a pager, though the text may include room numbers.

What's more, pages are saved and logged in the system, along with the content of the text message. "We can prove whether a page was made" and determine what workstation it came from and who was logged on at the time, Crowley says.

In the future, Giles says, she would like to see the paging system integrated with the physicians' on-call schedule. "If you're not on call, you can mark yourself out of town" and name an alternate doctor, she says.

The 200 NetPagers currently in use cost the same as numeric pagers — about $98 to $138 — and there are no additional infrastructure costs.

After three years of NetPager use, uptime remains well above 95%. Though outages are rare, "Internet access is most likely to drop [first], then the pager company, then our server," according to Giles.

Now that users are hooked on the NetPager system, they groan at the thought of paging the old-fashioned way — even when the system is down just once a month for maintenance. "When it's down," says Giles, "they cry!"

Collett is a Computerworld *contributing writer. You can contact her at stcollett@aol.com.*

PDAs and Parking Lots

IMAGINE MISPLACING your car in one of Disney World's 15,000-space parking lots. Now imagine that you finally remembered that your red Kia Rio was parked in the Daffy Duck section, but so are 500 other red Kia Rios.

That's the type of challenge facing employees at Auto Warehousing Co. in Tacoma, Wash., a staging area for Japanese- and Korean-made automobiles entering the U.S. At any given time, 25,000 cars fill the lot. When a dealer places an order for a car to be accessorized, workers find the vehicle and then take it to a warehouse to be processed and shipped via truck or rail.

To identify the right cars, employees use Intermec 750 Color Series mobile computers/scanners from Intermec Technologies Corp. in Everett, Wash., that support the 802.11b wireless standard. The devices scan the car's vehicle identification number and then link to an Auto Warehousing database that tells the worker where the car should go and what accessories to add.

"The Intermec scanners have definitely made my job a lot easier," says Leroy Stubblefeld, rail operations lead and an Intermec end user. "They are very easy to use, and we haven't had any problems with coverage around the yard. I like the fact that the screens are bright enough to be seen in the direct sunlight, and they hold up well when dropped or used in the rain. The software is very easy to use and has helped us reduce our rail shipping errors to almost zero."

The scanner signal travels to the facility's database via 17 access points – a mix of powered and non-powered antennas – spread over the 144-acre facility. But even that blanket coverage doesn't prevent some signal issues.

"You may have some directional issues when you kneel between two solid metal vehicles and try to maintain your signal strength," explains CIO Dale Frantz. "The ability to have better antenna or receiving capabilities on the scanners . . . would be helpful," but Frantz says he is willing to wait for those improvements.

A radio frequency application, for instance, provides a more powerful signal, "but it introduces a bunch of other problems," he says. Because Auto Warehousing is a port facility, national security issues come into play, and it's difficult to obtain the appropriate licenses from the Federal Communications Commission.

"Each generation of [802.11b scanner] equipment seems to improve connectivity," Frantz says. "In a couple of years, Intermec's next generation of equipment will presumably be better than the last."

And as for finding an application to more easily locate that specific car in a sea of red Kia Rios, "We're exploring RFID tags right now," Frantz says. While active radio frequency identification tags have been too expensive for his company, Frantz is working with Intermec on passive tags that would bring the per-unit cost down. "That would be really helpful for us."

– STACY COLLETT

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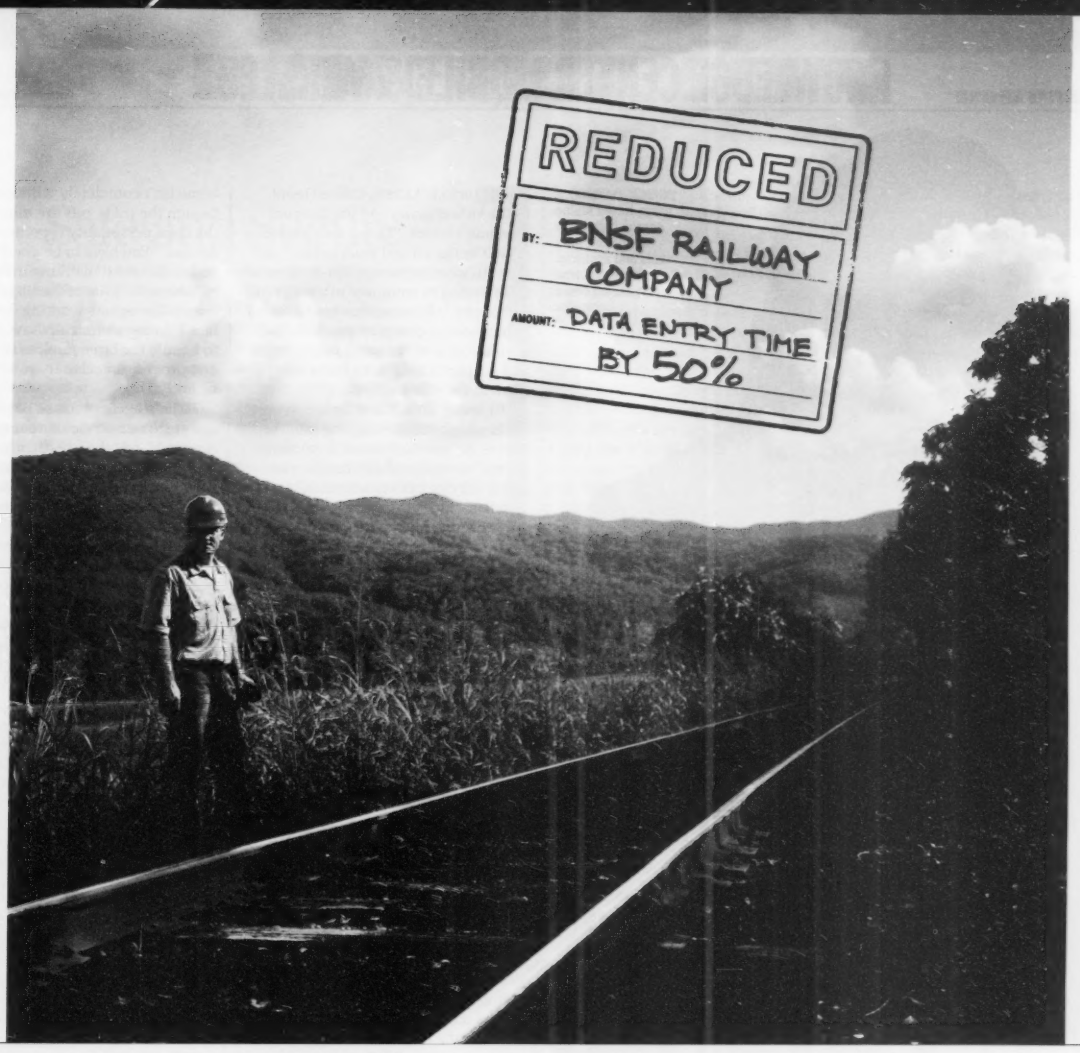

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BRENDA BAYLISS, a home-based Alpine Access call center agent, answers calls and accesses customer information via her home computer.

Call Center Agents

These headset-wearing agents must be able to access layers of corporate data when answering customer queries.

By Jennifer McAdams

A SHROUD OF unhappiness long blanketed call centers, where many agents would trudge to jobs they dreaded, only to face edgy callers needing customer service that was difficult to provide. Equally dismal was the outcome of the interactions with customers, since seven in 10 callers were likely to hang up dissatisfied, according to a poll by Opinion Research Corp. in Princeton, N.J.

Turning the tide on this gloomy arrangement, however, is a major work-from-home trend in the call center industry. Fueling this sea change are voice-over-IP (VoIP), wireless and computer-telephony integration (CTI) technologies, which make it easier to equip people to work from home.

Now able to lure more-seasoned workers into these hard-to-fill positions, U.S.-based contact centers are doing more than improving efforts to appease callers. Top officials at these call centers say they are also feeling more confident in the face of offshore competition. Both trends stem from the fact that at-home workers, especially those in tedious positions, almost always turn out to be happier employees.

Such is the case with Brenda Bayliss, a home-based call center agent for Alpine Access Inc., a Golden, Colo.-based provider of call center services whose clients include J.Crew, Office Depot, 1-800-Flowers.com and the Internal Revenue Service. "I can easily immerse myself in the virtual work realm," she says. To save employees like Bayliss from having to commute to a mega call center, Alpine Access has invested in technology that gives home-based agents access to the same programs and support available to those who work in the office.

"By using a computer linked to my home phone and logging into the Alpine Access Webcenter, I am 'transported' to work and can handle customer service calls from home," says Bayliss. "Everything I do for work is through my home computer — answering the calls, accessing customer information, asking questions in chat sessions with coaches and supervisors when necessary, and utilizing instant messaging technology for additional communications options."

Indeed, CTI and VoIP technologies are driving major changes in the industry, as is the ability to deploy specialized software necessary to present at-home agents with the screens they need to provide the answers callers need. "Knowledge management tools, along with improved desktops, also make it easier to get to the right information to serve the customer's needs," says call center consultant Lori Bocklund, who is president of Strategic Contact Inc. in Beaverton, Ore.

Investment in these tools often proves more reasonable than building or outfitting major call centers to house employees, says Bill Patterson, vice president of operations at eCallogy, a Bountiful, Utah-based contact center that handled scores of calls during the 2002 Winter Olympic Games. Further, the drive to outfit agents at home yields immediate results — higher retention rates and more-experienced agents. "We are attracting a higher-quality agent," says Patterson.

To set up its 40 at-home agents, eCallogy adopted InContact call center software from UCN Inc. in Bluffdale, Utah. Using employee-provided Windows-based PCs and a dedicated phone line, eCallogy is able to "pop" pages to at-home agents and allow them to work in tandem with supervisors stationed in operations centers. When fielding difficult calls, agents often use instant messaging or chat rooms to find answers, Patterson says.

The flexibility of working from home isn't completely without its price, though the trade-offs are minimal for the right personality type, according to Bayliss. "You have to be a self-starter and dedicated to working independently," she says. "One of the biggest challenges that agents working from home face is being technically savvy enough to handle the large number of screens and programs necessary to work efficiently."

To help agents such as Bayliss manage customer service screens, Alpine Access blends the use of its automated call distribution system with a Java-based softphone. Developed internally, the softphone allows agents to connect to the company's full suite of software so they can pull up vital customer service and account history information, according to Rick Owens, vice president of technology at Alpine Access. "In general, CTI continues to improve the customer service experience for both the end caller and the agent," he notes.

Wireless Policies

For fear of dropped calls, Alpine Access and many other call centers with remote employees prohibit at-home agents from taking calls on cell phones. Wireless accessories are a different story. "Headset technology continues to improve for comfort and range of motion. Most of our agents use wireless headsets," says Owens.

Even centers that don't offer the option of working from home are trying to make agents more comfortable with wireless options. "Our managers have cordless headsets," says Steve Boyce, management information systems director at Aargon Collection Agency in Las Vegas, which must forgo at-home work arrangements for legal reasons.

Companies in other industries don't have such tight restrictions on cell phone use. For instance, executives at Exclusively RNs LLC in Colorado Springs realize that to attract nurses willing to take calls, the company must accept the reality of cell phone use.

"Our nurses work after-hours, when

> **By using a computer linked to my home phone and logging into the Alpine Access Webcenter, I am 'transported' to work and can handle customer service calls from home.**
>
> BRENDA BAYLISS,

Safe and Secure

ON THE HARSHEST winter days, call center agent Charles Gunsolley works from his Denver home, booking vacations for others bound for warm and exotic destinations.

Call it ironic that Gunsolley – an agent for Honolulu-based Outrigger Hotels & Resorts – is just grateful that he doesn't have to commute in the snow. "The fun part of working from home is not having to stand out in the cold waiting for a bus," he says.

Gunsolley, however, battles more than the elements. "I am legally blind. It would be more difficult to keep my employment with Outrigger if I could not work from home. Transportation can be challenging to manage, and there are often other environmental problems at work, such as lighting. These can be more easily addressed with my own personal work space at home."

Gunsolley's home office is outfitted with equipment supplied entirely by Outrigger, which ships "locked-down" PCs to its at-home employees. "The biggest challenge is to ensure the security of our legacy system, a reservation application that is core to our business and integral to the work our call center agents perform every day," says Bill Peters, vice president of reservation systems.

Ultimately, the company plans to develop a Web-based graphical user interface to the reservation system, eliminating the need to ship secured PCs. The company also provides at-home workers with IP desktop phones from Echopass Corp. in Pleasanton, Calif.

– JENNIFER McADAMS

doctors' offices are closed," explains Anne Afshari, co-founder of the OB/GYN answering service. "We understand [that cell phone use] becomes necessary when it's time to pick the kids up from school."

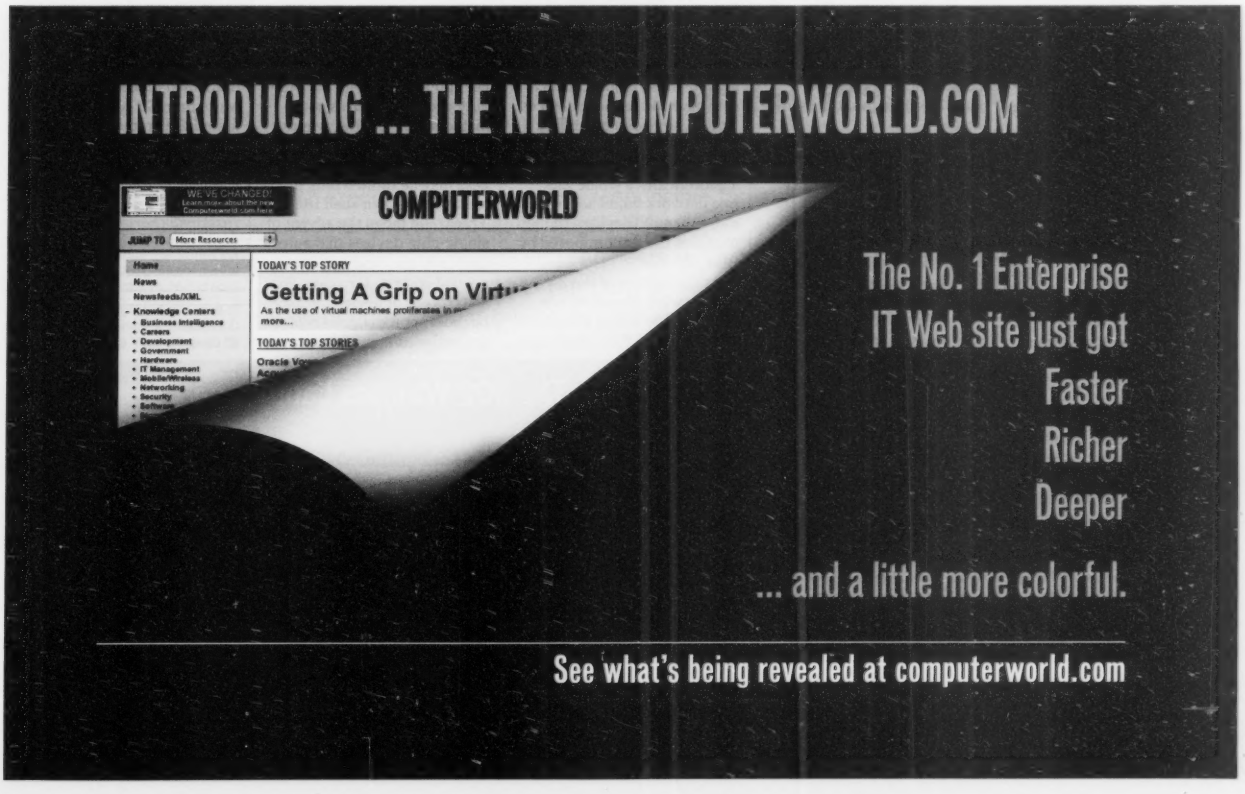
Sarah Hartman, a registered nurse and avid user of wireless technology, has taken more than a few cell phone calls from expectant mothers while on the go. "I use my cell phone with a headset — can't imagine trying to do this without a headset," she says. "My laptop has a Wi-Fi connection. My next investment will be a wireless connection for my printer."

To add flexibility, call centers are also relying on electronic means of training at-home workers. "All training is readily available by instant messaging and conference calls, and it's built into the available data on my company's Web site," says David Randall, a call center agent at LiveOps Inc., a Palo Alto, Calif.-based call center.

LiveOps has even set up an electronic tool that at-home agents can use to create their own schedules, says Chief Technology Officer Lloyd Tabb. "Online chats and forums build a sense of community," he says. Further, the call center electronically measures agents' productivity to ensure that the freedom built into the arrangement works for both the company and employee.

Indeed, at-home opportunities seem to be working for the call center industry as a whole and just might save substantial work from being shipped offshore to places where labor is cheaper, according to Jack Heacock, senior vice president at The Telework Coalition in Washington. "When we refer to telework, we separate it into two big camps — call center agents and everybody else," he says. "In the call center industry, the number of home agents is growing by leaps and bounds."

McAdams is a freelance writer in Vienna, Va. You can contact her at jjwriterva@aol.com.



ZigBee

DEFINITION

ZigBee is a short-range, low-power, wireless personal-area network technology optimized for low-cost sensor and control devices used in homes, office buildings, and medical and industrial settings.

BY RUSSELL KAY

WITH ITS oddball name, you might expect ZigBee to be a carbonated beverage, a child's toy or perhaps some sort of cult. In fact, it's yet another type of wireless network. Any wireless networking technology inevitably represents a compromise among a number of competing and conflicting characteristics, including power consumption, reliability, range of operation, speed of communications, cost, security, and the size and type of network connectivity. Thus, the specific data communications needs of any particular application will dictate which wireless technologies are likely to work most effectively.

QUICK STUDY

ZigBee is designed for relatively short distances, low-cost implementation and extremely low power consumption. It supports connectivity over a mesh network topology, which makes for exceptional reliability and path redundancy and virtually unlimited scalability to any number of connected devices.

These specialized characteristics make ZigBee particularly well suited for use in building automation and in industrial, medical and residential control and monitoring applications. If this new protocol achieves the sort of widespread acceptance that Wi-Fi has, in a few years we might see ZigBee-based wireless light switches, smoke and carbon-monoxide detectors, thermostats, home security devices, remote controls for consumer electronics equipment, medical sensing and monitoring units, and even motorized blinds and window shades.

Technical Underpinnings

ZigBee starts with the IEEE 802.15.4 packet radio standard, which defines the low-rate physical layer and the media access control portion of the data link layer. It communicates over unlicensed areas of the spectrum that cordless telephones and microwave ovens use. Most chips and modules use the 2.4-GHz band. A few make use of the 900-MHz band, which offers longer range and greater penetration through walls.

To this direct-sequence spread-spectrum radio specification, ZigBee adds a network layer that incorporates ad hoc self-organizing multihop routing. ZigBee can be configured in three different network topologies — star, peer-to-peer and mesh — but it is the latter that offers the most promise.

Just as the Internet does, a mesh network provides multiple pathways from device to device, ensuring that a message will get through. If nodes stop working or are taken out of the network, ZigBee signals can still use other pathways to reach their destinations, which dramatically improves overall reliability by eliminating a single point of failure.

ZigBee was designed to coexist with hostile radio frequencies, such as those typically found in industrial and commercial applications, which adds to its reliability.

Depending on the frequency band used, ZigBee devices can pass data and messages at rates of 20K to 250Kbit/sec. and have a range of 10 to 400 meters from one device to the next in the mesh. A security toolbox for ZigBee includes the use of access control lists, packet freshness timers, and encryption based on the AES-128 standard certified by the National Institute of Standards and Technology.

How large can a ZigBee network be? In a few years, a typical house might conceivably have 100 or more devices, while a large office building or factory could contain tens of thousands of ZigBee nodes. Theoretically, a single ZigBee network might address more than 10^{18} devices, though 65,000 is the limit imposed by IEEE 802.15.4.

At the bottom of the ZigBee network hierarchy is a type of node called a ZigBee End Device (ZED), which can perform only a single monitor or control function. The ZED communicates with nodes called ZigBee Routers (ZR). These can perform monitoring or control tasks, but they can also function as a router or repeater to pass a message along to another ZR or to the ZigBee Coordinator (ZC). Each network has one single ZC, which initiates the network formation.

Each ZigBee device includes the radio along with an embedded controller, the IEEE and ZigBee stacks, and minimum memory (both RAM and ROM). All can be created using low-cost, 8-bit microcontrollers that are battery powered.

ZigBee was designed from the start to use very little electrical power. In general, ZigBee protocols do this by minimizing the time the radio is on.

In most devices and applications, users will expect battery life that's measured in years. For applications with very low duty cycles — such as automated meter reading, where a device is active less than 1% of the time — battery usefulness may be limited only by the battery's own shelf life. This could mean the advent of single-chip devices that automatically transmit data when needed and run for years. For some types of devices, it may be most appropriate to replace the entire unit, not just the battery. The potential for medical or environmental monitors is extraordinarily bright.

History

The idea for ZigBee started in the late 1990s, when many engineers realized that both Wi-Fi and Bluetooth would be ill-suited to many applications. In particular, many engineers wanted to design ad hoc networks of digital radios that could organize themselves without requiring external configuration or network administration. The IEEE 802.15.4 standard was completed in 2003 and ratified in late 2004.

The ZigBee Alliance (*www.zigbee.org*) is an industry association that has branded and is promoting new uses for this wireless networking standard, in a fashion similar to how the Wi-Fi Alliance has pushed the Wi-Fi standard. Formed in 2002, the alliance coordinates activities and regulates and promotes the proposed standard and related technologies. More than 175 companies have joined the group.

Kay is a Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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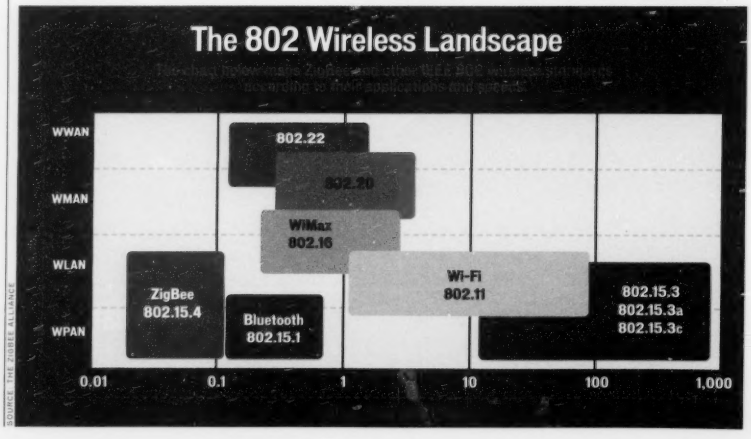

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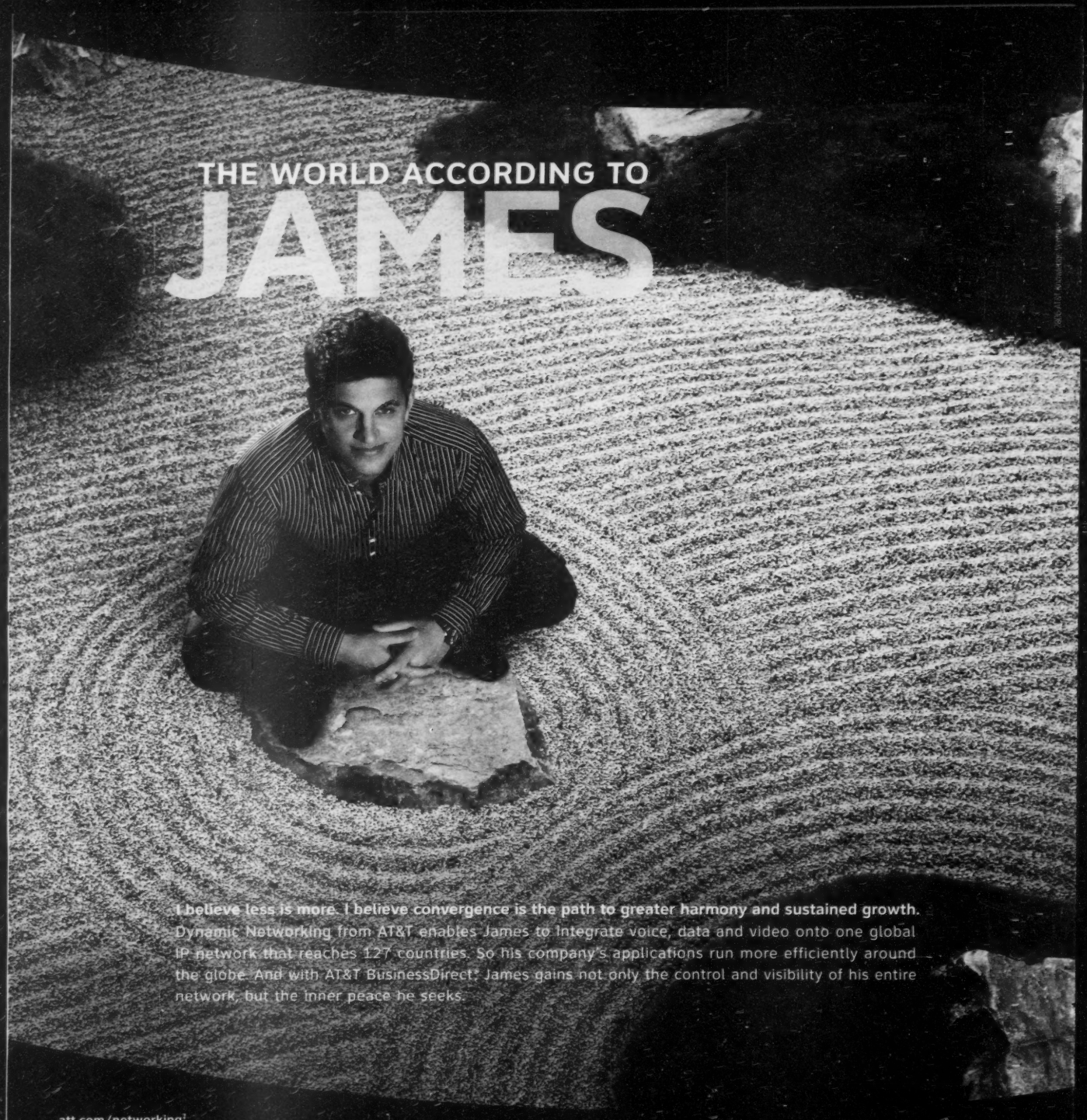
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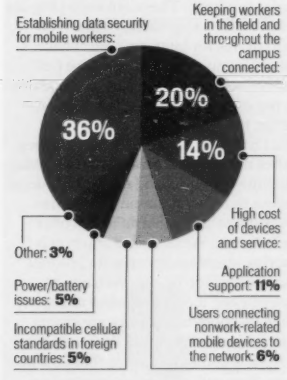
Research Insights

In an April 2006 survey, *Computerworld* asked its readers about the benefits and challenges of mobile technology. In the IT manager's world, security is the biggest issue, while end users are most concerned with the ups and downs of staying connected. And although most respondents report a return on investment from mobile devices, they also acknowledge that supporting those users is far more expensive than supporting desktop users.

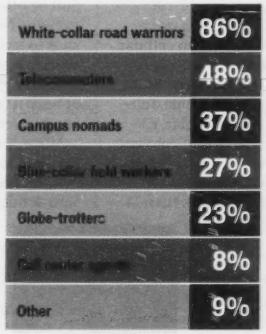
Security Trumps

What is the biggest challenge in mobile IT?


Establishing data security for mobile workers: 36%
Keeping workers in the field and throughout the campus connected: 20%
14%
High cost of devices and service:
Application support: 11%
Users connecting nonwork-related mobile devices to the network: 6%
Other: 3%
Power/battery issues: 5%
Incompatible cellular standards in foreign countries: 5%

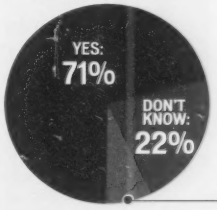
User Spectrum

Which mobile users do you support?*



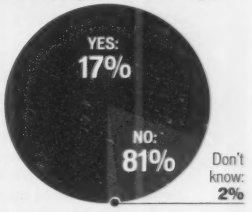
Mobile ROI

Is your company getting a return in user productivity from the mobile devices it has purchased?



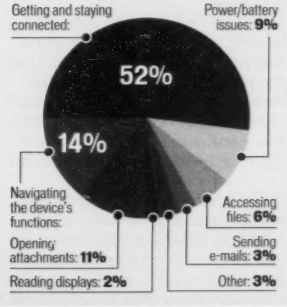
Development Bits

Does your department develop applications for the mobile devices your users carry?



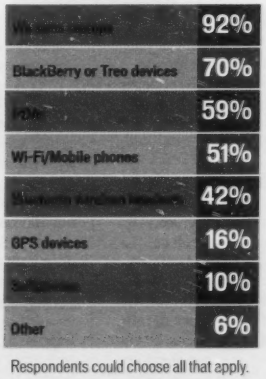
Can You Hear Me Now?

What do your users typically report is the biggest technical challenge with their mobile devices?



Device Diversity

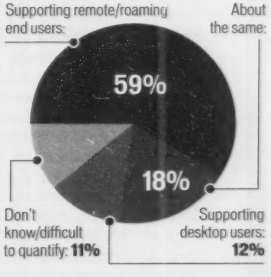
Which mobile devices do your users have?*



Respondents could choose all that apply.

Costly Roamers

Which is more expensive, supporting remote/roaming end users or supporting desktop users?



BASE: 190 IT professionals. *Indicates respondents could choose all that apply. **SOURCE:** Exclusive *Computerworld* survey, April 2006

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Snapshots

More to Manage

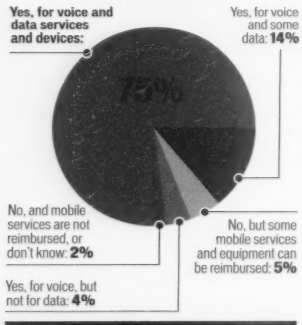
The top seven priorities in managing mobile users:

1. Security
2. End-user usability and productivity
3. Managing mobile devices
4. User access to employee information, intranet and e-mail
5. Application adaptation/development
6. Device management
7. Improving connectivity with customers

SOURCE: FORRESTER RESEARCH INC., DECEMBER 2005

Who Decides?

Does your company make mobile service and device purchase decisions for employees?


Yes, for voice and data services and devices:
75%
Yes, for voice and some data: 14%
No, and mobile services are not reimbursed, or don't know: 2%
No, but some mobile services and equipment can be reimbursed: 5%
Yes, for voice, but not for data: 4%

BASE: 56 mobility and remote access decision-makers

SOURCE: FORRESTER RESEARCH INC., DECEMBER 2005

Wireless Soars

Forecasted increases in wireless subscribers by 2010:

U.S.	WORLDWIDE
22%	36%

SOURCE: IDC, FEBRUARY 2006

MARK HALL

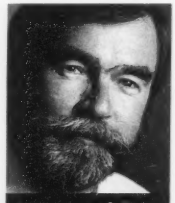
Real Magic

DESPITE THE BEST EFFORTS of Starbucks, airports and entire cities like Philadelphia to make wireless high-speed networking ubiquitous, there remain many places on this good earth where you can't get a Wi-Fi link. That means your plans for mobile workers still require strategies and techniques for keeping them productive on their laptops when they stray beyond the network tentacles of the 21st century.

Ironically, one of the places where high-speed networks are often inaccessible is the reception areas of high-tech companies located in Silicon Valley. That's because CIOs there and elsewhere are smart enough to keep nosy visitors (journalists, for example) off their Wi-Fi networks for security reasons. On occasion, you'll see savvy folks in lobbies linked to cellular broadband networks using lower-speed protocols like Evolution Data Optimized (EV-DO), offered by the likes of Verizon and Sprint, or Universal Mobile Telecommunication System (UMTS) from Cingular. EV-DO and UMTS employ PC card modems that connect laptops to nearby cell towers at a rate of around 1Mbit/sec. Although that's less than one-tenth the data rate possible with today's Wi-Fi systems, it's more than 14 times the speed you'll get from the fastest dial-up modem.

The biggest benefit of these cell phone "broadband" data services isn't their speed, it's their pervasiveness. If you can get cell coverage, you'll probably get EV-DO or UMTS. It's not limited to just big cities, where Wi-Fi is only now making headway.

Yet, even if every city blanketed its urban area with Wi-Fi signals, your mobile workers would still benefit from EV-DO or UMTS technology. Wi-Fi is not designed to hand off signals from one network to another. The cellular systems are designed specifically for that purpose. That's why on the train from Penn Station to Union Station, you can see a few tech-savvy road warriors downloading Web pages on their laptops via their cell modems while replicating their mail clients. It works almost like magic.



MARK HALL is a *Computerworld* editor at large. Contact him at mark_hall@computerworld.com.

Beyond Bandwidth

The speed of those cellular protocols is fine for Web browsing or scanning some of your e-mail. But you can improve the end-user experience even more. For example, give your e-mail users tools such as Microsoft's Outlook Mobile Manager (OMM). It can help manage messages when people are on the road by eliminating large attachments or sending summaries of calendar information instead of all the gory details. End users can set their own OMM preferences, or you can establish corporate policies and manage them centrally. One small drawback is that OMM works only for Outlook users with accounts on Exchange servers.

For your end users who spend lots of time researching online, consider equipping their systems with software like Offline Explorer Pro from MetaProducts, Spidersoft's WebZIP, Website Extractor from InternetSoft or other similar products. There are even plug-ins to Lotus Notes and Outlook that cache entire Web sites to laptop hard drives for later viewing. These tools are particularly useful for workers in the field who stay in low-rent motels with dial-up connectivity at best. After all, not everyone gets to stay at broadband havens like the Ritz-Carlton.

What about your road warriors who need to access information on sites they haven't already visited? Maybe they are subject-matter gurus and need to dig deep into detailed content that can be found only online.

Consider what Webaroo has to offer. This Bellevue, Wash.-based start-up is attracting attention because its product doesn't just scoop up one Web site at a time like the tools mentioned above. Rather, its eponymous software crams whole subject areas of the Web onto your laptop. The company claims that its algorithms eliminate redundant content online, such as repetitive logos, photos, GIFs and whatnot. What's left is then indexed, compressed and stuffed onto your laptop's hard drive. (Such an accomplishment belies the ancient "Dilbert" cartoon about the pointy-haired boss who asks his beleaguered assistant to "print out the Internet" for him. Perhaps someday that won't be such a silly request.)

Not Magic Any Longer

In 1983, I wrote for a magazine, now long defunct, called *Micro Communications*. Back then, I grappled with the arcane difference between baud and bit rates and the equally Byzantine Hayes Command Set for 1,200bit/sec. modems. So forgive me if the act of sending and receiving e-mail while accessing the complete works of Shakespeare online as I sip coffee in an outdoor cafe or ride a cross-town bus remains somewhat magical to me.

Of course, it's positively pedestrian for many end users. They expect real-time data anywhere they happen to be. And they don't want any excuses about technical hang-ups. They see the person in the seat next to them accessing information, so it's not magic to them. Luckily, there are many ways to make it real. ▸

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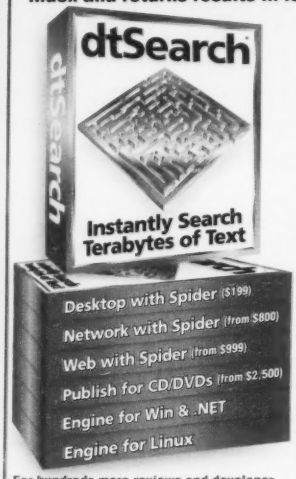
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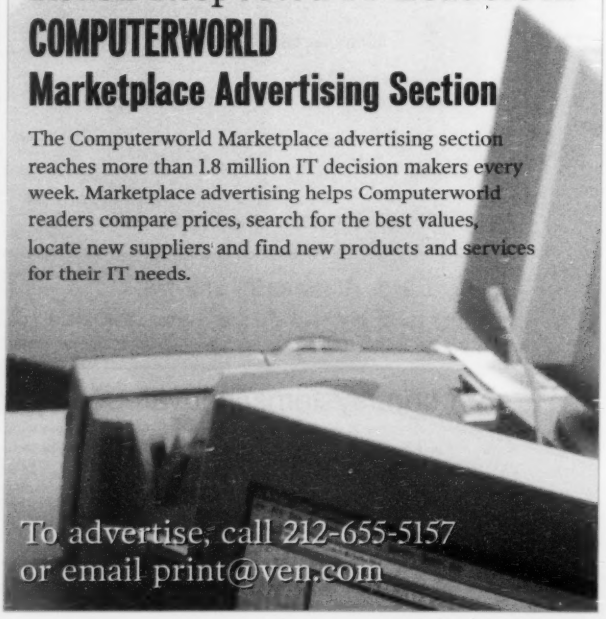

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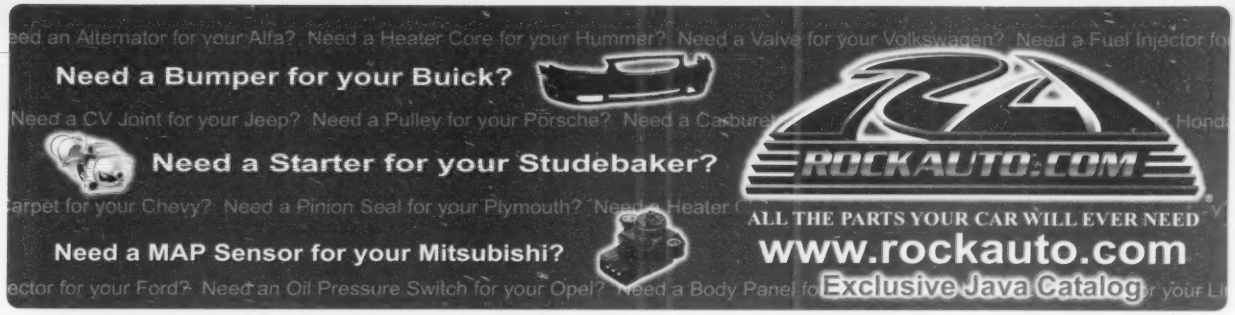
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Advertising Supplement

IT Careers: Applied Materials' Expansion Requires Diverse Talent

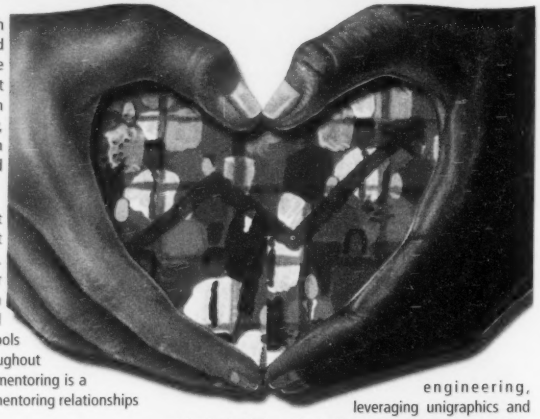
As Applied Materials grows internally and through acquisitions, its ability to attract people of diverse background, education, gender, age and race is becoming more and more important.

Craig Haught, managing director-global information solutions and technology at Applied Materials' Santa Clara, CA headquarters, says the company continues to target schools around the globe whose graduates meet the technical needs of the company. Applied Materials is known as the global leader in nanomanufacturing technology solutions for the electronics industry, with a broad portfolio of equipment, service and software products.

Just over a year ago, Applied Materials acquired single-wafer immersion technology and Marangoni clean/dry intellectual property from SCP Global Technologies. The company has opened Global Development Capability Centers in China and India to assure 24-hour operation that will speed the product development cycle. Most recently, Applied Materials signed an agreement to purchase Applied Films, adding additional thin-film deposition capabilities to its own products and services.

"As a global organization we have to focus on skills, leadership and capabilities that match the job, as opposed to focusing on gender or race," says Haught. "Like a lot of other companies, the effectiveness of our diversity efforts and what we plan and communicate has matured. We are very clear about and continually reinforce how we feel in terms of respect for the individual and global awareness."

The openness of this approach has gained recognition for Applied Materials, which was named one of Business Ethics' "100 Best Corporate Citizens" based on community relations, diversity, employees, environment, human rights governance, product and stockholder relations.



Haught says an important component of employment at Applied Materials is career growth. "A lot of people's growth over their careers has relied on mentoring. In the past year, we have formalized the mentoring process so we have tools in hand and an understanding throughout the executive leadership team that mentoring is a priority. We have to get people into mentoring relationships to develop a high potential staff."

In addition to offices in Asia, Europe and the Middle East, diversity is visible in U.S. offices, according to Haught. More than half the organization in the U.S. is comprised of minorities and women and attrition among these segments continues in the single digits – below industry averages.

Haught says the company is ramping up for a variety of projects, ranging from integrating acquired business and technologies into Applied Materials' enterprise, to the basics of ERP systems, SAP in particular, software engineering, leveraging unigraphics and mechanical CAD, and dealing with networking, mobile computer and collaborative tool sets. Entry level and intern positions are available, as well as senior positions.

"We will continue to grow in a variety of ways," he adds, "and we need a lot of skills to do so. People here get a lot of pride in seeing things that they do make a difference."

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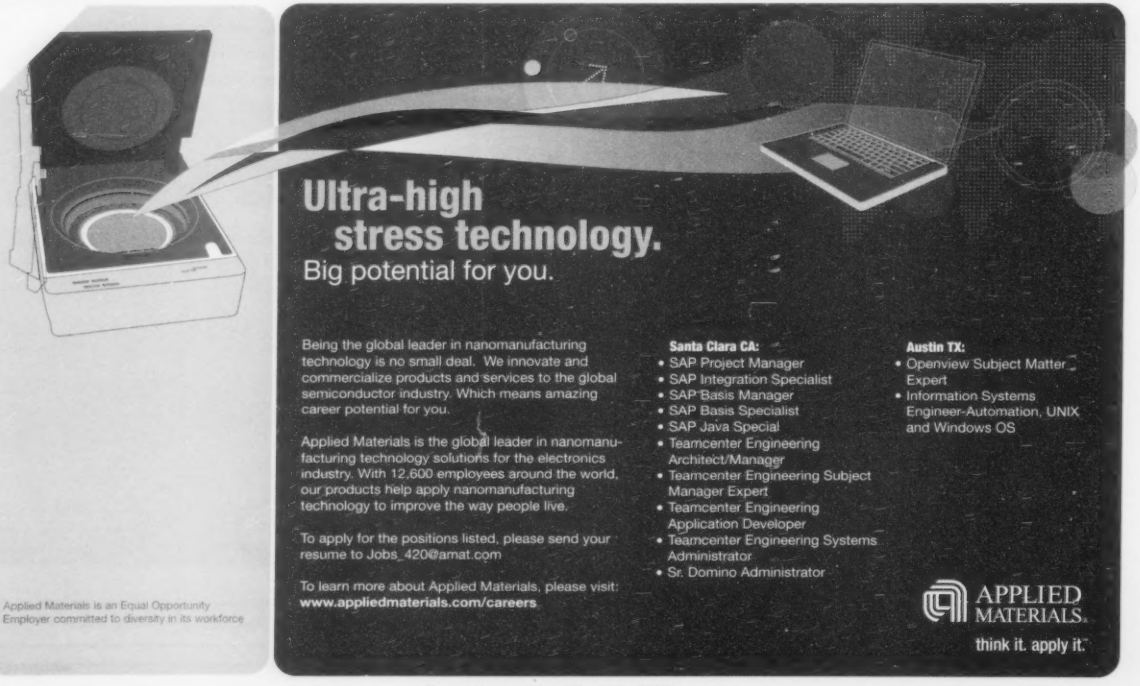
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SGI

"Obviously, I'm going to have concerns over future support," Brian Ropers-Huilman, the school's director of high-performance computing, said last week. The Prism system has specialized support needs that are available only through SGI itself, he said.

But, Ropers-Huilman added, "I don't feel that they are going to flat-out abandon their customers at this point. I have to believe that they are going to have a [viable] strategy."

Indeed, McKenna has been telling users since February that he has a strategy for SGI. Earlier this year, he restructured the Mountain View, Calif.-based company, laying off about 250 employees — 12% of its workforce — and installing some new executives. Then came the decision, announced last Monday, to seek Chapter 11 bankruptcy protection as part of a reorganization plan that SGI agreed to with its senior lenders and debt holders.

On Wednesday, a U.S. Bankruptcy Court judge in New York gave SGI initial approval to use $70 million in financing provided by a group of its bondholders to fund ongoing day-to-day operations during the migration process.

In an interview, McKenna said that no additional cutbacks are planned, and he asserted that the Chapter 11 filing won't disrupt SGI's operations.

"It's business as usual, and we will continue to reinforce that," he said, adding that SGI is moving ahead with plans to broaden its enterprise reach through the introduction of x86-based servers as well as blades running Intel Corp.'s Montecito dual-core processor. The new products will begin arriving next month, according to McKenna.

Analysts have blamed competition from low-cost x86 systems running Linux for SGI's financial plight. The company last week reported preliminary results for its third quarter, which ended March 31, saying that revenue totaled $108 million — down from $159 million in the same quarter a year earlier. It posted a preliminary net loss of $43 million.

NASA is using an SGI Altix supercomputer cluster with 10,240 Itanium 2 processors. Walt Brooks, who until recently was chief of the NASA Advanced Supercomputing division and still works at the agency, said via e-mail that SGI's NUMAflex shared-memory architecture is "the key to the effectiveness" of the cluster's design.

"There are other options out there for both capacity and capability computing, but overall, the [research] community would lose a major option in designing their computer centers if SGI failed to regain its footing," wrote Brooks, who also heads the SGI User Group. The group is scheduled to hold its annual conference next month in Las Vegas. ▸

New Chapter

- SGI said its reorganization plan will reduce its debts by $250 million.
- The company expects to emerge from Chapter 11 protection within six months.
- Its subsidiaries outside the U.S. will continue to operate without court supervision.
- Updates will be posted at *www.sgi.com/reorg*.

CEO: Bankruptcy Should Build 'Stable Foundation'

Dennis McKenna, SGI's chairman and CEO, spoke with *Computerworld* last week about the company's Chapter 11 filing and its financial reorganization plan. Excerpts follow:

Why did you file for Chapter 11 protection? The company had accumulated legacy costs over the years, and as we explored options to fix those issues, this became the option that could provide the quickest and best relief in order for the company to move forward with its new business model.

Have you started speaking to your customers about the filing? We have. We gave them an explanation about what it means for the welfare of the company and its ability to move forward and to support them in the short term and longer term as a continued supplier. The one clear message is, we're glad that there is a level of certainty on the future of SGI. It's been that uncertainty that has really had an impact, despite having a new management team and strategies.

What's the basis for that level of certainty? You had a 12% layoff in March, and you're under intense competition from vendors selling x86-based Linux supercomputers. We have a new management team in place. We've realigned our organization to improve our ability to execute. We've defined a new business model, and we removed legacy cost structures. And we have a balance sheet that will be fixed through this [bankruptcy] process. This is a stable foundation for us to move forward; the company has not had that for some time.

Will customers see any changes in service and support as a result of the bankruptcy filing? None whatsoever. In fact, we realigned our sales and services organization so it would be more efficient and productive.

Are you planning any additional cutbacks? No more than what we have already announced.

– PATRICK THIBODEAU

IT Managers Keep Close Eye On Programming Contest

BY HEATHER HAVENSTEIN

More than 64 computer programmers from 19 countries gathered in Las Vegas earlier this month for the 2006 TopCoder Open, where developers competed to solve a complex algorithmic problem, design an application or develop a software component.

The competition for $150,000 in prizes also provided an opportunity for corporate and government IT managers to recruit developers.

The secretive National Security Agency, a co-sponsor of the contest, publicly acknowledged that it hoped to recruit some contestants for its developer ranks. UBS AG was also a co-sponsor of the event, which was run by TopCoder Inc.

Glastonbury, Conn.-based TopCoder regularly taps some of the 80,000 programmers who have taken part in its contests to develop software for outsourcing clients such as Stage Stores Inc. and ESPN Inc.

The freelance TopCoder developers are building several Windows-based handheld applications for Stage Stores, a Houston-based apparel retailer that operates 540 stores.

Work on the inventory, receiving, carton-scanning and merchandise transfer applications is slated to be finished in July, said Stage Stores CIO Jeff Kish. The handheld project is the latest in a series that TopCoder has done for Stage in recent years, Kish said. For instance, the firm has built applications to handle the online sale of gift cards and to manage product returns.

"You can look at the competitions week after week and see how the developers are scoring," Kish said. "If you offshore something, you may understand the project manager, but you have no way of understanding the quality of the resources below that level."

Meanwhile, Kish is considering whether to launch internal competitions for Stage's development staff to help identify areas where employees need additional training.

Shawn Willett, an analyst at Current Analysis Inc. in Sterling, Va, said TopCoder's "virtual sourcing" model could be viable for companies that don't have the scale to justify offshoring development.

TopCoder's contract developers are also building a content management system for a Mobile Companion project under way at sports broadcaster ESPN. The system will send viewers information about events as they are broadcast by the network, said John Zehr, vice president of development at ESPN.

Zehr said the TopCoder project is the first one in which ESPN has used nonstaff programmers to build a content system.

TopCoder developers used XML and Web services to build the content management system, which is now being tested and is slated to be rolled out this summer.

"They could increase our bandwidth without us necessarily hiring more people, and do it in a way that the code base becomes 'open-source' within our realm so we can add onto it," Zehr said. ▸

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FRANK HAYES ■ FRANKLY SPEAKING

Sleazier Still

IT'S sleazier than we thought. In last week's *Computerworld*, Don Tennant spent his editorial going ballistic about an attempt by Microsoft to intimidate its customers. Tennant recounted how a Microsoft manager named Janet Lawless sent a series of increasingly threatening letters to Dale Frantz, CIO at Auto Warehousing Co., about how Frantz's company appeared to be using unlicensed software and how Microsoft wanted the issue resolved.

Frantz figured this was about his Microsoft software licenses, so he kept offering evidence that he was in compliance. Tennant concluded that Lawless was trying to intimidate Frantz to land a software deal.

They were both wrong. It's sleazier than they imagined.

See, Janet Lawless doesn't work for a part of Microsoft that enforces licenses. Frantz thought she did. You'd think so too if you got a letter saying "a preliminary review . . . indicates that your company may not be licensed properly," then a follow-up saying "since this is a compliance issue, I am obligated to notify an officer of Auto Warehousing of the situation and the significant risk your organization may be subject to by not resolving this situation in a timely manner."

Lawless kept insisting that Microsoft should send a consultant to Auto Warehousing to inventory its software.

But Lawless doesn't enforce licenses. The clue is her title: She's an engagement manager. That's right — Lawless's job is to drum up business for Microsoft's consulting operation. In this case, that's Microsoft's software asset management consulting business.

This wasn't about confirming license compliance *or* about a software deal. It was about securing Microsoft a paid consulting gig.

So let's review: Lawless didn't just try to intimidate a customer. She misrepresented her purpose. And when it was clear that the customer had been misled, she didn't clarify that she was trying to sell a consulting engagement. Instead, she continued to mislead the customer.

Now *that's* sleazy.

Is it supposed to be? Microsoft says no. According to Robert Deshaies, a Microsoft vice president for the software asset management program, the goal truly is to help customers get the most out of their Microsoft software licenses. And he insists that four out of five customers are happy with the results.

But here's what happens if you're a big Microsoft customer: Your customer history and purchase cycles are reviewed on a monthly basis by an engagement manager like Lawless. (That's right — your Microsoft purchasing history is handed off to the consulting side for making sales pitches.)

Then the engagement manager makes the initial pitch — that's the "preliminary review indicates your company may not be licensed properly" letter Frantz got. Deshaies says most customers take up the opportunity at that point.

And if, like Frantz, the customer says no? Then the pressure is ratcheted up with a higher-level effort to make the sale, Deshaies says.

If there's still no sale, if the engagement manager still believes there's a problem with the customer's licenses, the final decision is whether or not to pursue it, Deshaies says — presumably by kicking the issue over to the software sales side.

Incidentally, engagement managers like Lawless are working from a "designed process." Frantz wasn't facing some loose cannon. Lawless was following the script.

"This isn't about license compliance," Deshaies says. Yes, it is. It shouldn't be, but it is. Right now, Microsoft's software asset management consulting services are pitched from the start as being about license compliance. And if the customer keeps saying no, the last stop is a threat to sic the license police on the customer.

That's how Microsoft is selling consulting these days.

Deshaies says he doesn't want customers to be misled. He says Microsoft will be looking at the process to make sure the right message gets across. That's good to hear.

Because that message needs work. Today, it's at best muddled — and at worst deceptive, irresponsible and genuinely sleazy. ◗

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com.**

Unclear on the Concept

This clerk has been carefully supervised for his first three months working on a PC, and now his boss figures he's ready to key in some transactions on his own. But the next morning, the work's not done. Why not? boss asks. Clerk's response: There was a "strange picture" on the computer's screen. "The clerk didn't want any damage to the computer ascribed to him," reports an IT pilot fish on the scene. "He left the system as it was until the following day, when the experts would fix it for him. That same day, the boss asked the IT guys to disable the screensavers of all users on-site."

SHARK TANK

Not Quite Enough

CIO calls in support pilot fish because his laptop's hard drive has apparently died. Just remove the hard drive and give me back the laptop for my meeting, he tells fish. I don't need the drive, because I store everything on the network. "After I explain why that would not work, there's an awkward silence and a blank stare," says fish. "Finally, I end up taking his whole PC and the CIO reschedules the meeting. The good thing is that he really did use network storage to store all his documents, so his loss was minimal."

Close Enough

When this engineering outfit gets the job of integrating a military project, the security chief gets a little paranoid. "He refuses to give me the keypad code for a high-security computer lab I only need to use for a day," sighs a pilot fish on the scene. "When I get locked out while on a break, on a lark I try the keypad code we use on the maintenance closet door – the same code the cleaning crew uses. Sure enough, it works."

Wrong Enough

Support pilot fish reports a head-scratcher of a trouble ticket: "Severity: 2. Description: PC failure. PC will not boot properly. User believes her fan belt has been broken."

The Right Cable For the Job

Pilot fish is on the phone resolving a user's problem, so he can't give his full attention to network installer who pokes his head into the test lab several times. "When I finished the call, I went looking for him to see what he needed help with," says fish. "I found him in the parking lot with the hoods up on two of our vans. He'd strung several strands of Cat 5e cable between the battery terminals of the vans and was trying to use them to jump-start a van with a low battery. Fortunately, I had the cable he needed for his 'network.' "

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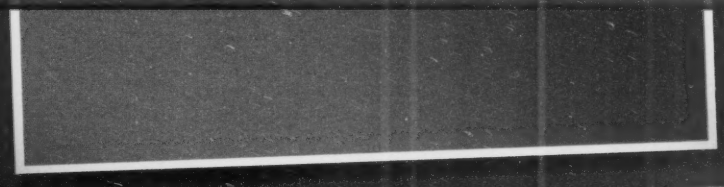
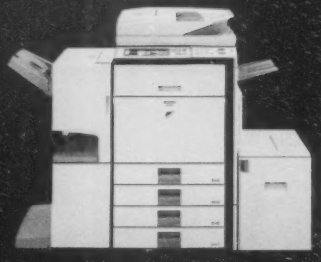
If you don't take control of your data, someone else will.



INTRODUCING THE SHARP MX-SERIES. These color MFPs help prevent sensitive information from falling into the wrong hands by providing two layers of advanced security. First they encrypt digital information, then they overwrite the disk. It's no wonder Sharp won BERTL's Best Security Solutions Suite for 2005, the BERTL 5-Star Exceptional rating for product usability and the BLI award for "IT Friendliness." Be secure. Be Sharp. Visit sharpusa.com/security



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ENERGY STAR

As an ENERGY STAR® Partner, Sharp has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

BERTL BEST 2

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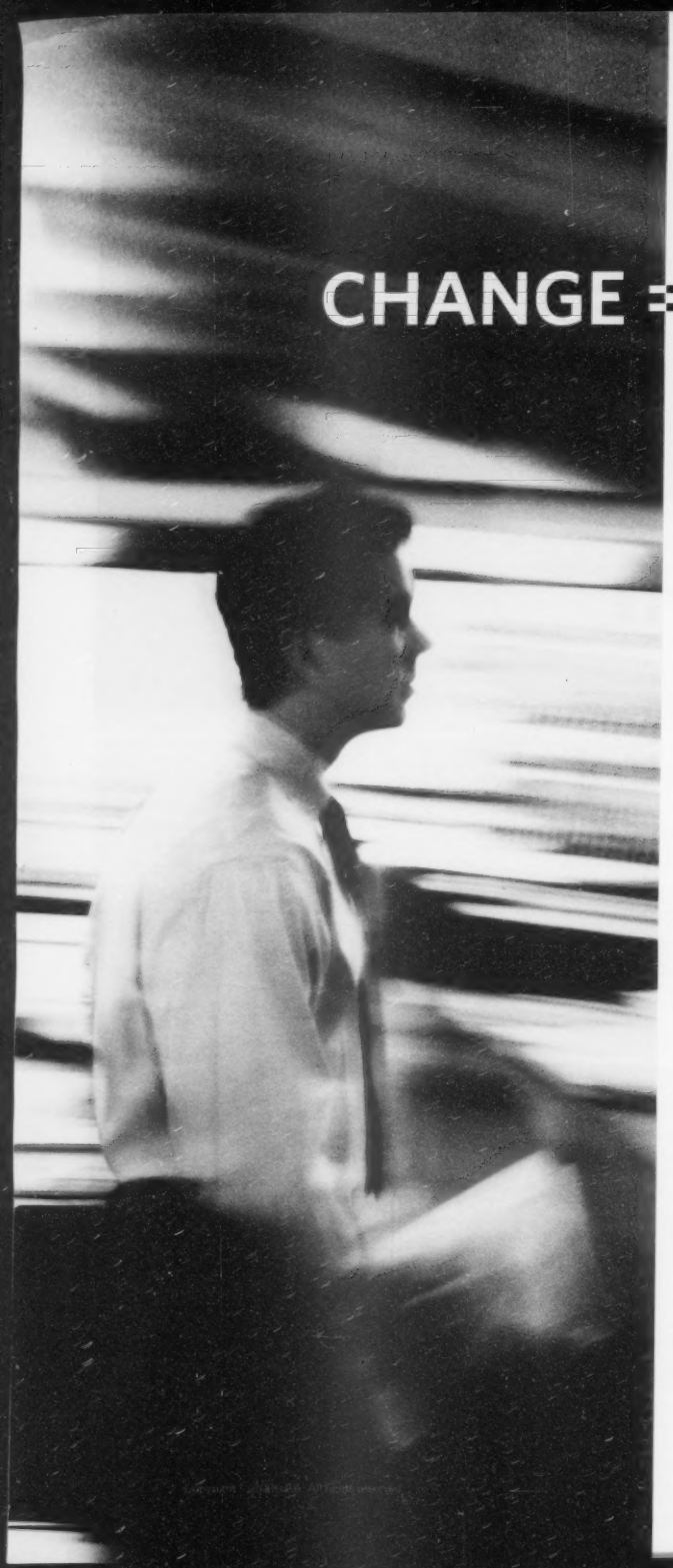
MX-SERIES



CHANGE = STABILITY

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